SAT PRACTICE TEST 20

Reading and Writing - Module 1

TIME: 32 minutes for 27 questions

DIRECTIONS: Read each passage or question carefully and choose the best answer based on what is stated or implied. Each question has one best answer.

1. Oceanographers studying thermohaline circulation—the global conveyor belt of ocean currents driven by temperature and salinity differences—have grown increasingly concerned about potential disruption from Arctic ice melt. Freshwater influx reduces surface water density, potentially weakening the sinking that drives Atlantic circulation patterns. Climate models suggest that significant slowdown could fundamentally alter weather patterns across Europe and North America. This research demonstrates how distant environmental changes can produce _____ consequences through interconnected global systems.

Which choice completes the text with the most logical and precise word?

A. localized
B. isolated
C. contained
D. far-reaching

2. Philosopher Simone de Beauvoir's foundational feminist text "The Second Sex" argued that gender is not biologically determined but socially constructed through cultural expectations and practices. Her famous declaration that "one is not born, but rather becomes, a woman" challenged essentialist views treating gender differences as natural and inevitable. This constructionist perspective influenced subsequent feminist theory, gender studies, and social movements by suggesting that if gender is made, it can also be remade. De Beauvoir's work thus provided intellectual foundation for transformative social change.

Which choice best describes the function of the underlined sentence in the text as a whole?

A. It contradicts de Beauvoir's claims about gender construction.
B. It explains the broader significance and influence of de Beauvoir's constructionist argument.
C. It describes the biological research supporting gender essentialism.
D. It provides biographical details about de Beauvoir's personal life.

3. Microbiologists investigating horizontal gene transfer—the movement of genetic material between organisms outside reproduction—have discovered that bacteria routinely exchange genes conferring antibiotic resistance, metabolic capabilities, and virulence factors. This process occurs through mechanisms including conjugation, transformation, and viral transduction. Unlike vertical inheritance from parent to offspring, horizontal transfer enables rapid adaptation by sharing innovations across species boundaries. This phenomenon complicates traditional evolutionary models depicting descent as branching trees, suggesting instead that bacterial evolution resembles an interconnected _____.

Which choice completes the text with the most logical and precise word?

A. ladder
B. pyramid
C. network
D. hierarchy

4. The following text is from Frederick Douglass's 1852 speech "What to the Slave is the Fourth of July?"

What, to the American slave, is your Fourth of July? I answer: a day that reveals to him, more than all other days in the year, the gross injustice and cruelty to which he is the constant victim. To him, your celebration is a sham; your boasted liberty, an unholy license; your national greatness, swelling vanity; your sounds of rejoicing are empty and heartless.

What rhetorical effect does Douglass create through his use of "your"?

A. He emphasizes the exclusion of enslaved people from American ideals of freedom and independence.
B. He expresses gratitude for the opportunities America provides.
C. He aligns himself with his audience's patriotic celebrations.
D. He acknowledges that slavery represents only a minor flaw in American society.

5. Behavioral geneticists studying heritability—the proportion of trait variation attributable to genetic differences—emphasize that high heritability does not imply genetic determinism or immutability. Height is highly heritable yet has increased dramatically across generations due to improved nutrition. Intelligence test scores show substantial heritability within populations yet significant between-group differences may reflect environmental factors. This distinction between genetic contribution to individual variation and environmental modification of population averages is frequently _____ in popular discussions of genetic research.

Which choice completes the text with the most logical and precise word?

A. emphasized
B. clarified
C. highlighted
D. overlooked

6. Economists analyzing "Dutch disease"—the paradox where natural resource abundance can impair economic development—observe that resource windfalls often appreciate exchange rates, making other exports uncompetitive while concentrating economic activity in extraction industries. _____ resource-dependent economies become vulnerable to commodity price fluctuations and may neglect development of diversified industrial and service sectors essential for long-term prosperity.

Which choice completes the text with the most logical transition?

A. Similarly
B. Consequently
C. However
D. Nevertheless

7. Archaeologists investigating the collapse of ancient civilizations have moved beyond monocausal explanations—drought, invasion, disease—toward multicausal models recognizing that complex societies fail through interacting stressors. The Maya collapse likely involved drought, deforestation, warfare, and political fragmentation reinforcing each other in cascading feedback loops. This systemic perspective suggests that resilience depends not on avoiding any single threat but on maintaining adaptive capacity across multiple domains. Contemporary sustainability science draws on archaeological case studies to understand vulnerability and resilience in modern complex systems.

Which choice best describes the function of the underlined sentence in the text as a whole?

A. It contradicts the multicausal model described earlier in the passage.
B. It provides specific dates for the Maya civilization's collapse.
C. It explains what the multicausal collapse model implies for system resilience.
D. It describes the agricultural techniques used by ancient Maya.

8. Linguists studying language acquisition have documented a "critical period" during which children effortlessly acquire native-level proficiency in any language to which they're exposed. After puberty, language learning requires conscious effort and rarely achieves native fluency. This developmental window suggests that language acquisition involves maturational processes distinct from general learning mechanisms. The critical period hypothesis has implications for educational policy, second language instruction, and understanding _____ in neural development.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. plasticity
B. plasticities
C. plasticity's
D. plasticities'

9. Political theorist Hannah Arendt distinguished "power"—collective capacity arising from people acting together—from "violence"—instrumental force that destroys rather than creates. Totalitarian regimes substitute violence for genuine power, atomizing populations into isolated individuals incapable of collective action. _____ Arendt's analysis suggests that sustainable political authority requires participatory legitimacy that violence alone cannot provide.

Which choice completes the text with the most logical transition?

A. Similarly
B. For instance
C. Nevertheless
D. Thus

10. Neurobiologists studying memory consolidation have identified distinct memory systems: declarative memory for facts and events involving hippocampal processing, and procedural memory for skills and habits involving basal ganglia circuits. Sleep plays crucial roles in consolidating both memory types, with different sleep stages preferentially supporting different memory systems. _____ research has practical implications for education and skill training, suggesting that sleep deprivation may impair learning more significantly than previously recognized.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. These
B. This
C. Those
D. That

11. While researching ocean acidification, a marine biology student compiled these notes:

• Ocean absorbs approximately 30% of atmospheric CO_2 emissions
• Dissolved CO_2 forms carbonic acid, lowering ocean pH
• Ocean pH has decreased 0.1 units since industrial revolution (30% acidity increase)
• Acidification impairs shell formation in mollusks, corals, and planktonic organisms
• Coral reef ecosystems support approximately 25% of marine species
• Pteropods (sea butterflies) form base of many Arctic and Antarctic food webs
• Economic impacts include declining shellfish harvests and reef tourism

The student wants to emphasize ocean acidification's ecological significance. Which choice most effectively uses information from the notes to accomplish this goal?

A. The ocean has absorbed roughly 30% of atmospheric carbon dioxide emissions since industrialization began.
B. Ocean pH has decreased by 0.1 units since the industrial revolution, representing a 30% increase in acidity.

C. By threatening shell-forming organisms foundational to marine food webs and coral reef ecosystems supporting 25% of ocean species, acidification endangers oceanic biodiversity at multiple trophic levels.
D. Economic impacts of ocean acidification include declining shellfish harvests and reduced reef tourism revenue.

12. Chemist Linus Pauling revolutionized understanding of chemical bonding through his work on electronegativity, hybridization, and the nature of the chemical bond itself. His later career, however, became controversial when he advocated megadose vitamin C therapy for treating cancer and other diseases—claims largely unsupported by subsequent clinical research. _____ scientific legacy demonstrates how exceptional achievement in one domain doesn't guarantee sound judgment in others.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. Pauling's
B. Paulings
C. Paulings'
D. Pauling

13. Anthropologists studying gift economies—systems where goods circulate through reciprocal giving rather than market exchange—have documented how gifts create social bonds and obligations fundamentally different from commodity transactions. Marcel Mauss argued that gifts are never truly free but carry expectations of reciprocity that establish enduring relationships. In market economies, transactions complete obligations, but in gift economies, exchanges initiate ongoing social _____ that bind communities together.

Which choice completes the text with the most logical and precise word?

A. competitions
B. conflicts
C. isolations
D. entanglements

14. The following text is from Virginia Woolf's 1929 essay "A Room of One's Own."

A woman must have money and a room of her own if she is to write fiction. She must have the habit of freedom and the courage to write exactly what she thinks. By hook or by crook, I hope that you will possess yourselves of money enough to travel and to idle, to contemplate the future or the past of the world, to dream over books and loiter at street corners.

What does Woolf suggest is necessary for women's creative and intellectual development?

A. Formal university education in literature and writing
B. Economic independence and personal autonomy

C. Approval from established male literary figures
D. Strict discipline and adherence to conventional schedules

15. Physicists investigating quantum entanglement have confirmed that measuring one entangled particle instantaneously affects its partner regardless of distance—a phenomenon Einstein dismissed as "spooky action at a distance." While entanglement cannot transmit information faster than light, it enables quantum cryptography and quantum computing applications impossible with classical physics. These practical applications demonstrate that quantum mechanics' counterintuitive predictions, however philosophically _____, have concrete technological implications.

Which choice completes the text with the most logical and precise word?

A. obvious
B. intuitive
C. unsettling
D. comforting

16. Sociologists studying social mobility have found that while absolute mobility—whether people earn more than their parents—has declined in recent decades, relative mobility—whether people change position within the income distribution—has remained relatively stable. This distinction matters because declining absolute mobility may reflect broader economic stagnation rather than decreased opportunity for advancement. _____ debates about mobility should specify which type is under discussion to avoid conflating distinct phenomena.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. Thus,
B. Thus
C. Thus;
D. Thus:

17. Ecologists studying invasive species have challenged the assumption that native species are inherently preferable to introduced ones. In some contexts, non-native species provide ecosystem services—pollination, seed dispersal, erosion control—that native species no longer perform due to habitat degradation. While invasive species can certainly cause ecological damage, blanket opposition to all non-native organisms may impede pragmatic conservation strategies in human-altered landscapes. This nuanced perspective remains controversial among conservation biologists.

Which choice best describes the function of the underlined sentence in the text as a whole?

A. It argues that all invasive species should be immediately eradicated.
B. It qualifies the pro-native assumption while suggesting a more pragmatic approach.
C. It proves that non-native species are always beneficial to ecosystems.

D. It describes specific methods for removing invasive species.

18. Developmental psychologists studying attachment have identified how early caregiver relationships shape internal working models influencing adult relationship patterns. Securely attached infants typically develop into adults comfortable with intimacy and interdependence, while insecurely attached individuals may exhibit anxiety about abandonment or avoidance of closeness. _____ these patterns, while influential, are not deterministic—therapeutic relationships and corrective emotional experiences can reshape attachment orientations throughout life.

Which choice completes the text with the most logical transition?

A. Therefore
B. However
C. Similarly
D. Consequently

19. Historians analyzing the Scientific Revolution debate whether it represented genuine epistemological rupture or gradual evolution from medieval natural philosophy. Thomas Kuhn's influential "paradigm shift" model emphasized discontinuity, while subsequent scholarship has recovered continuities with earlier traditions including Islamic science and medieval scholasticism. This historiographical debate reflects broader questions about whether intellectual change occurs through revolutionary breaks or cumulative _____.

Which choice completes the text with the most logical and precise word?

A. disruptions
B. interruptions
C. transformations
D. destructions

20. Cognitive scientists investigating decision-making have identified "cognitive load"—the mental effort required for information processing—as a factor influencing choice quality. When cognitive resources are depleted through fatigue, stress, or competing demands, decision-makers increasingly rely on heuristics and defaults rather than deliberative analysis. This finding has implications for institutional design: important decisions should be structured to minimize unnecessary cognitive demands and provide appropriate defaults. _____ framework suggests that choice architecture can improve outcomes without restricting options.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. This
B. These
C. Those

D. That

21. While researching sleep deprivation, a neuroscience student gathered these notes:

• Adults require 7-9 hours of sleep for optimal cognitive function
• Sleep deprivation impairs attention, memory consolidation, and emotional regulation
• Chronic sleep restriction increases risks of obesity, diabetes, and cardiovascular disease
• Adolescent circadian rhythms naturally shift toward later sleep and wake times
• Early school start times conflict with adolescent sleep biology
• Studies show later start times improve attendance, grades, and mental health
• American Academy of Pediatrics recommends middle/high schools start no earlier than 8:30 AM

The student wants to argue for later school start times for adolescents. Which choice most effectively uses information from the notes to accomplish this goal?

A. Adults require between 7 and 9 hours of sleep nightly for optimal cognitive functioning.
B. Chronic sleep restriction increases risks of obesity, diabetes, and cardiovascular disease.
C. Because adolescent circadian rhythms naturally shift later, early school start times cause chronic sleep deprivation that impairs academic performance and health, supporting the AAP's recommendation for start times no earlier than 8:30 AM.
D. The American Academy of Pediatrics recommends that middle and high schools start no earlier than 8:30 AM.

22. Economist Amartya Sen's "capability approach" reframes development from income growth to expanding people's substantive freedoms—their capabilities to achieve valued functionings like being healthy, educated, and politically engaged. This framework shifts evaluation from aggregate economic metrics to whether individuals can actually do and be what they have reason to value. _____ approach has influenced international development policy, human rights discourse, and measures of wellbeing beyond GDP.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. Sens
B. Sen's
C. Sens'
D. Sen

23. Geologists studying mass extinctions have identified periodic catastrophes punctuating Earth's history, with the five largest eliminating 75-95% of species. The end-Permian extinction 252 million years ago devastated marine and terrestrial ecosystems; the end-Cretaceous event 66 million years ago eliminated non-avian dinosaurs. Some scientists argue we're currently experiencing a sixth mass extinction driven by human activity, with extinction rates far exceeding background levels. This claim remains debated, but the comparison highlights the _____ scale of contemporary biodiversity loss.

Which choice completes the text with the most logical and precise word?

A. minimal
B. negligible
C. unprecedented
D. insignificant

24. Philosopher John Rawls proposed evaluating social institutions from behind a "veil of ignorance"—imagining you don't know your place in society—to derive principles of justice. Rawls argued that rational agents under such conditions would choose principles ensuring basic liberties and arranging inequalities to benefit the least advantaged members. _____ thought experiment has been enormously influential in political philosophy, though critics question whether its conclusions follow from its premises.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. Rawls's
B. Rawls
C. Rawlses
D. Rawls'

25. Musicologists studying the blues have traced how this African American musical tradition, emerging from spirituals, work songs, and field hollers, became foundational to jazz, rock and roll, and popular music globally. The blues scale, call-and-response patterns, and expressive vocal techniques diffused through recordings and migration, transforming diverse musical traditions. This influence demonstrates how marginalized cultural expressions can achieve _____ impact, reshaping dominant cultural forms while their origins remain inadequately acknowledged.

Which choice completes the text with the most logical and precise word?

A. minimal
B. limited
C. restricted
D. profound

26. While researching artificial intelligence ethics, a computer science student gathered these notes:

• AI systems can perpetuate biases present in training data
• Facial recognition algorithms show higher error rates for darker-skinned individuals
• Hiring algorithms have discriminated against women when trained on historical data
• Algorithmic decisions in criminal justice affect bail, sentencing, and parole
• AI decision-making processes are often opaque "black boxes"
• Lack of transparency prevents meaningful accountability for harmful outcomes
• European Union's GDPR includes "right to explanation" for automated decisions

The student wants to emphasize the need for algorithmic transparency. Which choice most effectively uses information from the notes to accomplish this goal?

A. AI systems trained on biased data can perpetuate discrimination in hiring and criminal justice contexts.
B. Facial recognition algorithms demonstrate higher error rates when identifying darker-skinned individuals.
C. Because opaque algorithmic decision-making prevents accountability for discriminatory outcomes in high-stakes domains like criminal justice and employment, transparency requirements like the EU's "right to explanation" are essential.
D. The European Union's GDPR includes provisions requiring explanation of automated decisions.

27. Psychologist Mihaly Csikszentmihalyi studied "flow"—states of complete absorption in challenging activities where skill matches difficulty, producing intrinsic satisfaction and lost sense of time. Flow experiences occur across domains from athletics to artistic creation to scientific research. Csikszentmihalyi's research suggests that wellbeing depends less on passive pleasure consumption than on active engagement with optimally challenging activities. This finding implies that happiness is less a state to be achieved than a _____ emerging from meaningful engagement.

Which choice completes the text with the most logical and precise word?

A. destination
B. possession
C. byproduct
D. prerequisite

TIME: 32 minutes for 27 questions

DIRECTIONS: Read each passage or question carefully and choose the best answer based on what is stated or implied. Each question has one best answer.

1. Paleoclimatologists reconstructing ancient climates through ice cores, tree rings, and sediment analysis have documented that Earth's climate has fluctuated dramatically over geological time. However, the rate of current warming far exceeds natural variability observed in paleoclimate records spanning 800,000 years. This discrepancy between historical climate change and present trajectories suggests that contemporary warming results from factors _____ to natural cycles—namely, anthropogenic greenhouse gas emissions.

Which choice completes the text with the most logical and precise word?

A. identical
B. similar
C. extrinsic
D. equivalent

2. Sociologist Erving Goffman analyzed social interaction as "dramaturgy"—theatrical performance where individuals manage impressions through "front stage" behavior presented to audiences and "backstage" preparation hidden from view. This framework illuminates how people navigate different social contexts, adjusting self-presentation based on audience expectations. The dramaturgical perspective doesn't suggest people are insincere but rather that all social life involves performance, making authenticity itself a performed achievement rather than a discovered essence. Goffman's work influenced interactionist sociology and contemporary studies of identity.

Which choice best describes the function of the underlined sentence in the text as a whole?

A. It addresses a potential misunderstanding of the dramaturgical framework.
B. It contradicts Goffman's central claims about social performance.
C. It provides statistical evidence supporting the dramaturgy model.
D. It describes Goffman's research methodology.

3. Neuroscientists studying neurodegeneration have identified that Alzheimer's disease involves accumulation of amyloid plaques and tau protein tangles, though debate continues about which pathology is primary. Drug trials targeting amyloid removal have shown limited clinical benefit despite successfully clearing plaques, suggesting the amyloid hypothesis may be _____ or that intervention occurs too

late in disease progression. Alternative approaches now target tau, inflammation, and metabolic dysfunction.

Which choice completes the text with the most logical and precise word?

A. confirmed
B. validated
C. supported
D. incomplete

4. The following text is from Chinua Achebe's 1958 novel "Things Fall Apart."

Among the Igbo the art of conversation is regarded very highly, and proverbs are the palm-oil with which words are eaten. Okonkwo was not a man of thought but of action. He could not put his thoughts into words, and therefore he was not a great speaker. When he was moved to talk, he spoke quickly and with a certain quaver in his voice. He was an intense man who was always nervous when he was not fighting a war or wrestling.

What does Achebe suggest about Okonkwo's character through this description?

A. He possesses eloquence valued by his community but chooses not to display it.
B. He excels at physical action but lacks the verbal skills his culture prizes.
C. He deliberately cultivates an intimidating presence through calculated silence.
D. His nervousness reflects deep wisdom and thoughtful contemplation.

5. Economists studying behavioral finance have documented "present bias"—the tendency to overweight immediate rewards relative to future benefits, even when patience would maximize total value. This bias explains why people undersave for retirement, overspend on credit, and struggle with health behaviors requiring delayed gratification. Understanding present bias has informed "nudge" interventions that structure choices to counteract _____ impulses through defaults like automatic enrollment in savings programs.

Which choice completes the text with the most logical and precise word?

A. rational
B. deliberate
C. impulsive
D. calculated

6. Archaeologists studying ancient trade networks have used chemical analysis to trace obsidian artifacts to specific volcanic sources, revealing exchange systems spanning hundreds of kilometers during the Neolithic period. _____ these findings challenge earlier assumptions that prehistoric communities

were isolated and self-sufficient, demonstrating instead that long-distance exchange and interconnection characterized human societies far earlier than previously recognized.

Which choice completes the text with the most logical transition?

A. Consequently
B. Nevertheless
C. Similarly
D. Furthermore

7. Cognitive linguist George Lakoff argued that abstract reasoning relies fundamentally on metaphorical mappings from embodied physical experience. We understand time through spatial metaphors ("looking forward to the future"), arguments through war metaphors ("defending a position"), and morality through purity metaphors ("clean conscience"). These conceptual metaphors aren't merely linguistic decorations but shape how we actually think about abstract domains, with different metaphors enabling different inferences and conclusions. Lakoff's work influenced cognitive science, philosophy, and political communication analysis.

Which choice best describes the function of the underlined sentence in the text as a whole?

A. It provides examples of conceptual metaphors in everyday language.
B. It contradicts the claim that metaphors shape reasoning.
C. It explains the cognitive significance of conceptual metaphors beyond language.
D. It describes the historical origins of metaphorical thinking.

8. Epidemiologists investigating disease transmission have modeled how network structure affects contagion dynamics. Highly connected "hub" individuals can accelerate epidemic spread, while network fragmentation through quarantine or social distancing slows transmission. These models proved valuable during the COVID-19 pandemic, informing public health interventions targeting superspreading events and high-connectivity _____ rather than treating all contacts equivalently.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. node's
B. nodes
C. nodes'
D. node

9. Philosopher Martha Nussbaum developed a "capabilities approach" to justice emphasizing that societies should ensure citizens can achieve certain fundamental human capabilities—life, health, bodily integrity, education, political participation, and others. This framework differs from approaches focusing solely on resources or subjective welfare by asking what people can actually do and be. _____ Nussbaum's list of central capabilities has been criticized as culturally specific despite claims to universality.

Which choice completes the text with the most logical transition?

A. Therefore
B. Similarly
C. However
D. Consequently

10. Astronomers studying stellar evolution have mapped the lifecycle of stars from nebular formation through main sequence fusion, giant phases, and terminal fates ranging from white dwarfs to neutron stars to black holes depending on initial mass. _____ understanding enables prediction of our own Sun's future: approximately five billion years of continued hydrogen fusion followed by red giant expansion engulfing the inner planets before contraction to white dwarf remnant.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. This
B. These
C. Those
D. That

11. While researching cryptocurrency, an economics student compiled these notes:

• Bitcoin uses blockchain technology—distributed ledger recording all transactions
• Cryptocurrency transactions don't require traditional financial intermediaries
• Mining validates transactions but consumes enormous computational energy
• Bitcoin mining uses more electricity annually than many countries
• Proof-of-stake alternatives reduce energy consumption by 99%+
• Cryptocurrency enables financial services for unbanked populations globally
• Volatility and speculation have dominated cryptocurrency markets
• Regulatory frameworks remain uncertain across jurisdictions

The student wants to present both benefits and environmental concerns of cryptocurrency. Which choice most effectively uses information from the notes to accomplish this goal?

A. Bitcoin mining consumes more electricity annually than many countries use.
B. Cryptocurrency enables financial access for unbanked populations while regulatory uncertainty persists across jurisdictions.
C. While cryptocurrency offers financial inclusion for unbanked populations, its energy-intensive mining raises sustainability concerns that proof-of-stake alternatives may address.
D. Proof-of-stake consensus mechanisms can reduce cryptocurrency energy consumption by more than 99%.

12. Anthropologist Claude Lévi-Strauss applied structural linguistics to analyze myths, kinship systems, and cultural phenomena, arguing that underlying structures generate surface variations across cultures. His structuralist approach sought universal patterns in human cognition rather than cataloging cultural differences. _____ methodology proved enormously influential in mid-twentieth-century humanities, though poststructuralist critics later challenged its claims to discover universal cognitive structures.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. Lévi-Strauss
B. Lévi-Strauss's
C. Lévi-Strausses
D. Lévi-Strauss'

13. Urban planners studying "urban heat islands"—the phenomenon where cities experience significantly higher temperatures than surrounding rural areas—have documented that dark surfaces like asphalt and rooftops absorb solar radiation while reduced vegetation eliminates evaporative cooling. These temperature differentials can exceed 10°F and intensify during heat waves, disproportionately affecting low-income neighborhoods with less tree cover and more impervious surfaces. Mitigation strategies including cool roofs, urban forestry, and permeable pavements can reduce this _____ effect.

Which choice completes the text with the most logical and precise word?

A. beneficial
B. cooling
C. deleterious
D. insignificant

14. The following text is from Mary Shelley's 1818 novel "Frankenstein."

I had worked hard for nearly two years, for the sole purpose of infusing life into an inanimate body. For this I had deprived myself of rest and health. I had desired it with an ardour that far exceeded moderation; but now that I had finished, the beauty of the dream vanished, and breathless horror and disgust filled my heart.

What does Victor Frankenstein's reaction to his creation suggest?

A. Obsessive pursuit of goals can lead to outcomes that horrify rather than satisfy.
B. Scientific discovery inevitably produces beneficial results for humanity.
C. Hard work and dedication guarantee fulfillment of one's dreams.
D. Creating life through science is a morally straightforward endeavor.

15. Linguists studying pidgin and creole languages have observed that when children acquire pidgins as native languages, they spontaneously introduce grammatical complexity absent in the input—regularizing verb systems, adding articles, and creating recursive structures. This "creolization" process suggests children don't merely imitate linguistic input but impose grammatical structure reflecting innate language capacity. The phenomenon provides evidence for biological constraints on language _____ that guide acquisition regardless of environmental input quality.

Which choice completes the text with the most logical and precise word?

A. destruction
B. elimination
C. deterioration
D. acquisition

16. Historians analyzing the Atlantic slave trade have emphasized its unprecedented scale—approximately 12.5 million Africans forcibly transported to the Americas over four centuries—and its foundational role in generating wealth that financed European industrialization. _____ contemporary discussions of reparations and racial inequality remain inseparable from this historical legacy, whose economic and social effects persist across generations.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. Thus;
B. Thus,
C. Thus
D. Thus:

17. Psychologists studying "stereotype threat"—anxiety about confirming negative stereotypes about one's group—have documented that awareness of stereotypes can impair performance on relevant tasks. Women reminded of gender stereotypes before math tests perform worse than control groups; African Americans primed with racial stereotypes show decreased standardized test performance. These effects occur among individuals who don't personally endorse the stereotypes, demonstrating that mere awareness of societal expectations can undermine performance. Interventions reducing stereotype salience can eliminate these performance gaps.

Which choice best describes the function of the underlined sentence in the text as a whole?

A. It proves that stereotypes are always accurate predictors of ability.
B. It clarifies that stereotype threat operates independently of personal belief.
C. It contradicts the existence of stereotype threat effects.
D. It describes the brain regions involved in stereotype processing.

18. Geophysicists monitoring volcanic activity use seismic sensors, gas emissions, and ground deformation measurements to forecast eruptions. While prediction has improved dramatically, volcanic systems remain complex and _____, with some volcanoes erupting without clear precursors while others show warning signs that don't culminate in eruptions. This uncertainty requires balancing evacuation costs against eruption risks.

Which choice completes the text with the most logical and precise word?

A. unpredictable
B. predictable
C. reliable
D. consistent

19. Philosopher Peter Singer's utilitarian ethics argues that moral consideration should extend to all sentient beings capable of suffering, regardless of species membership. This "expanding circle" challenges conventional boundaries limiting moral concern to humans, arguing that species membership per se carries no more moral weight than race or gender. Singer's arguments have influenced animal welfare movements, vegetarian advocacy, and bioethics, though critics question whether utilitarian frameworks adequately capture moral intuitions about rights and dignity. The debate continues in contemporary ethical theory.

Which choice best describes the function of the underlined sentence in the text as a whole?

A. It contradicts Singer's utilitarian premises entirely.
B. It describes Singer's personal dietary practices.
C. It notes Singer's practical influence while acknowledging philosophical objections.
D. It proves that utilitarianism is the correct ethical framework.

20. Meteorologists studying extreme weather events have documented increased frequency and intensity of hurricanes, heat waves, droughts, and flooding consistent with climate model predictions. Attribution science now enables estimation of how much human-caused warming contributed to specific events. _____ 2021 Pacific Northwest heat dome, which would have been virtually impossible without climate change, killed hundreds and highlighted infrastructure vulnerability to emerging climate extremes.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. A
B. The
C. That
D. Those

21. Economists analyzing automation's labor market effects distinguish between "routine" tasks—following explicit rules—and "non-routine" tasks requiring flexibility, creativity, or interpersonal skills. Automation has displaced routine cognitive and manual jobs while increasing demand for non-routine

analytical and interpersonal work. This "polarization" has hollowed out middle-skill employment, concentrating job growth at high and low ends of the wage distribution. Workers displaced from routine occupations face _____ prospects when their skills don't transfer to growing sectors.

Which choice completes the text with the most logical and precise word?

A. excellent
B. promising
C. diminished
D. enhanced

22. Biologists studying CRISPR gene editing have demonstrated unprecedented precision in modifying DNA sequences, enabling potential treatments for genetic diseases, cancer, and infectious diseases. _____ germline modifications affecting future generations raise profound ethical questions about consent, equity, and unintended consequences that current regulatory frameworks inadequately address.

Which choice completes the text with the most logical transition?

A. However
B. Similarly
C. Therefore
D. Consequently

23. While researching misinformation, a communications student gathered these notes:

• Social media algorithms prioritize engagement over accuracy
• Emotionally provocative content spreads faster than neutral information
• Misinformation spreads six times faster than accurate news on Twitter
• Corrections often fail to reach audiences who saw original false claims
• "Continued influence effect" means corrections don't fully eliminate misinformation's impact
• Media literacy education shows mixed effectiveness in reducing susceptibility
• Platform interventions including labels and friction have limited effects
• Pre-bunking (inoculating against manipulation techniques) shows promise

The student wants to argue that addressing misinformation requires approaches beyond simple corrections. Which choice most effectively uses information from the notes to accomplish this goal?

A. Misinformation spreads approximately six times faster than accurate news on social media platforms.
B. Social media algorithms prioritize engagement, which often favors emotionally provocative content.
C. Because corrections fail to fully eliminate misinformation's influence and often don't reach affected audiences, preventive approaches like pre-bunking may prove more effective than post-hoc fact-checking.
D. Media literacy education has shown mixed effectiveness in reducing susceptibility to misinformation.

24. Architect Christopher Alexander's "pattern language" proposed that good design emerges from combining proven solutions to recurring problems—patterns like "light on two sides of every room" or "entrance transition." This approach influenced software engineering's design patterns and participatory design movements emphasizing user involvement. _____ work challenged modernist architecture's top-down expertise by suggesting that ordinary people could create humane environments through pattern application.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. Alexanders
B. Alexander's
C. Alexanders'
D. Alexander

25. Political scientists studying democratic transitions have documented that while economic development correlates with democracy, the relationship is complex and contested. Some wealthy states remain authoritarian while some poor countries sustain democratic governance. Factors including civil society strength, institutional legacies, external pressures, and elite bargaining shape democratic outcomes in ways that defy simple economic _____.

Which choice completes the text with the most logical and precise word?

A. promotion
B. enhancement
C. determinism
D. encouragement

26. While researching biodiversity conservation, an environmental science student gathered these notes:

• Protected areas cover approximately 15% of Earth's land surface
• Many protected areas lack adequate funding, staffing, and enforcement
• "Paper parks" exist legally but provide little actual protection
• Habitat fragmentation isolates populations even within protected areas
• Wildlife corridors connecting reserves enable genetic exchange and migration
• Indigenous-managed lands often show biodiversity outcomes equal to or exceeding formal reserves
• Community-based conservation aligns local economic interests with conservation
• 80% of Earth's biodiversity exists on Indigenous peoples' territories

The student wants to argue for conservation approaches beyond traditional protected areas. Which choice most effectively uses information from the notes to accomplish this goal?

A. Protected areas now cover approximately 15% of Earth's land surface.
B. Many protected areas suffer from inadequate funding, staffing, and enforcement.

C. Given that Indigenous-managed lands often match protected areas' conservation outcomes and contain 80% of Earth's biodiversity, effective conservation requires partnership with Indigenous communities beyond traditional reserve boundaries.

D. Wildlife corridors connecting protected areas enable genetic exchange between otherwise isolated populations.

27. Neuroscientist Antonio Damasio's "somatic marker hypothesis" proposes that emotions, encoded as bodily sensations, guide rational decision-making by marking options with positive or negative feelings. Patients with damage to emotion-processing brain regions make poor decisions despite intact logical reasoning, suggesting emotion and reason are integrated rather than opposed. This framework challenges Enlightenment assumptions separating passion from reason and has implications for understanding addiction, moral judgment, and economic choice. Damasio's work demonstrates that effective rationality is fundamentally _____ rather than purely cognitive.
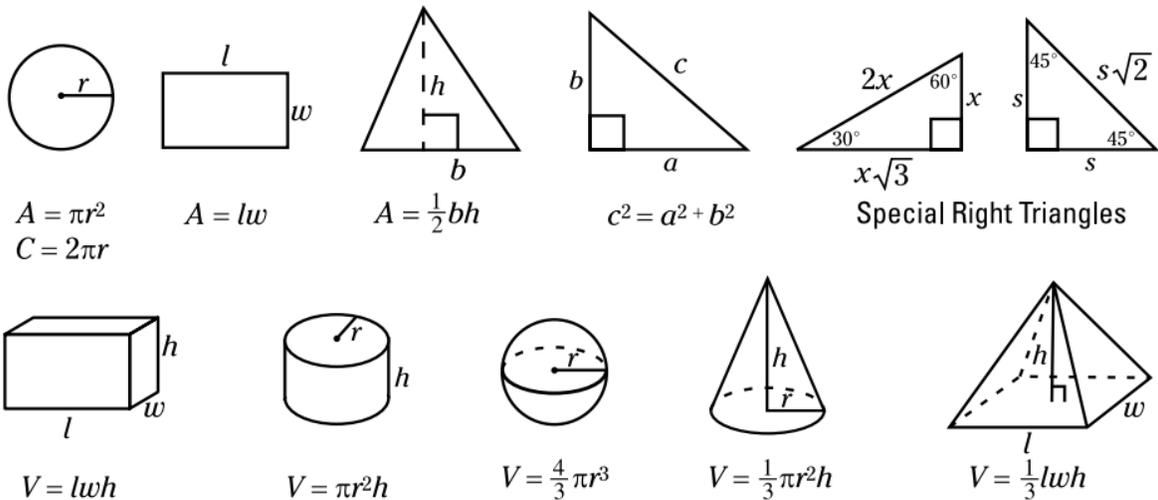
Which choice completes the text with the most logical and precise word?

A. logical
B. analytical
C. computational
D. embodied

Math - Module 1

TIME: 35 minutes for 22 questions

DIRECTIONS: For multiple-choice questions, choose only one answer for each question. For student-produced response questions (questions 16-22), write only one answer, even if you find more than one correct answer. Don't include symbols such as a percent sign, comma, or dollar sign.

$A = \pi r^2$　　　$A = lw$　　　$A = \frac{1}{2}bh$　　　$c^2 = a^2 + b^2$　　　Special Right Triangles
$C = 2\pi r$

$V = lwh$　　　　$V = \pi r^2 h$　　　$V = \frac{4}{3}\pi r^3$　　　$V = \frac{1}{3}\pi r^2 h$　　　$V = \frac{1}{3}lwh$

1. If $3(2x - 5) = 4x + 7$, what is the value of x?

A. 6
B. 11
C. 16
D. 22

2. A store sells notebooks for \$4 each and pens for \$2 each. If Marcus buys a total of 15 items and spends exactly \$42, how many notebooks did he buy?

A. 3
B. 4
C. 5
D. 6

3. If $f(x) = x^2 - 6x + 8$ and $g(x) = x - 2$, for what value of x does $f(x) = g(x)$?

A. 2 and 5
B. 3 and 4
C. 1 and 6
D. 2 and 4

4. The function h(t) = -16t² + 64t + 80 models the height in feet of a projectile t seconds after launch. What is the maximum height reached by the projectile?

A. 80 feet
B. 128 feet
C. 144 feet
D. 160 feet

5. If $\log_2(x) = 5$, what is the value of $\log_2(4x)$?

A. 6
B. 7
C. 10
D. 20

6. A circle has its center at (4, -3) and passes through the point (10, 5). What is the radius of the circle?

A. 8
B. 9
C. 10
D. 10

7. In a right triangle, one leg is 7 units and the hypotenuse is 25 units. What is the length of the other leg?

A. 24
B. 18
C. 17
D. 15

8. If 4^(x-1) = 8^(x-2), what is the value of x?

A. 1
B. 2
C. 4
D. 8

9. The average of five consecutive odd integers is 35. What is the smallest of these integers?

A. 29
B. 31
C. 33
D. 35

10. A polynomial p(x) is divisible by (x - 3). If $p(x) = x^3 - 2x^2 - 5x + k$, what is the value of k?

A. -6
B. 3
C. 5
D. 6

11. If $\sin(\theta) = 5/13$ and θ is in the first quadrant, what is the value of $\cos(\theta)$?

A. 12/13
B. 5/12
C. 12/5
D. 8/13

12. A rectangle has perimeter 56 units and area 192 square units. What is the length of the longer side?

A. 12
B. 14
C. 16
D. 18

13. If the point (3, k) lies on the line $2x - 3y = 12$, what is the value of k?

A. -3
B. -2
C. 2
D. 6

14. A geometric sequence has a first term of 3 and a common ratio of 2. What is the sum of the first 6 terms?

A. 96
B. 126
C. 168

D. 189

15. If $x^2 + y^2 = 100$ and $xy = 48$, what is the value of $(x - y)^2$?

A. 4
B. 16
C. 36
D. 52

16. If $3^{(x+2)} = 243$, what is the value of 3^x?

17. The sum of two numbers is 20 and their product is 96. What is the positive difference between the two numbers?

18. A cube has a volume of 512 cubic centimeters. What is the total surface area of the cube in square centimeters? (Surface area of a cube $= 6s^2$)

19. In an arithmetic sequence, the 3rd term is 15 and the 8th term is 40. What is the sum of the first 5 terms?

20. If $f(x) = 3x - 4$ and $f(f(x)) = 50$, what is the value of x?

21. A right triangle has legs of length 9 and 12. A similar triangle has a hypotenuse of 25. What is the area of the larger triangle?
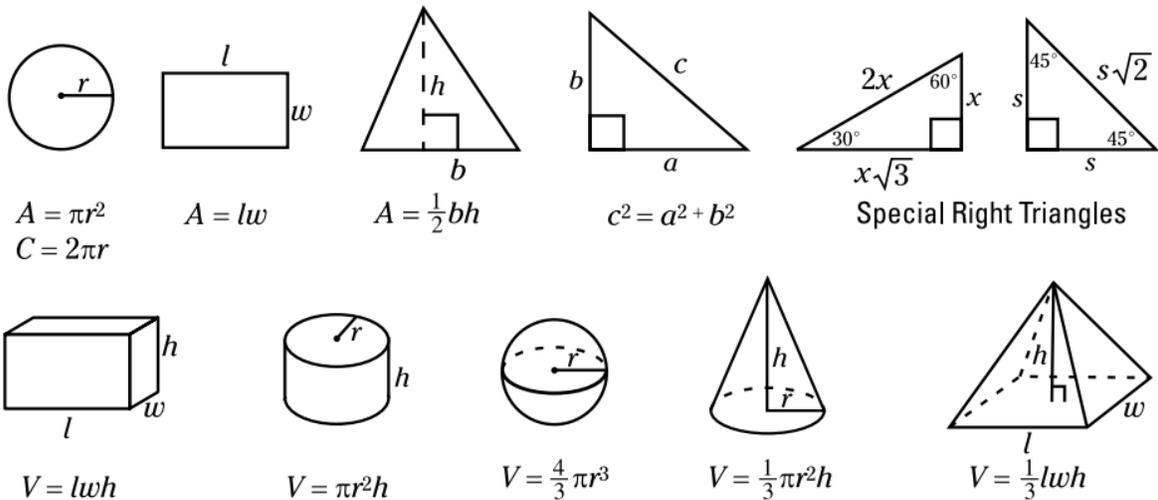
22. If $(x + 3)(x - 2) = 14$, what is the positive value of x?

Math - Module 2

TIME: 35 minutes for 22 questions

DIRECTIONS: For multiple-choice questions, choose only one answer for each question. For student-produced response questions (questions 16-22), write only one answer, even if you find more than one correct answer. Don't include symbols such as a percent sign, comma, or dollar sign.

$A = \pi r^2$ $A = lw$ $A = \frac{1}{2}bh$ $c^2 = a^2 + b^2$ Special Right Triangles
$C = 2\pi r$

$V = lwh$ $V = \pi r^2 h$ $V = \frac{4}{3}\pi r^3$ $V = \frac{1}{3}\pi r^2 h$ $V = \frac{1}{3}lwh$

1. If $f(x) = 2x^2 - 3x + 1$, what is $f(-2)$?

A. 7
B. 11
C. 15
D. 19

2. A car travels 180 miles in 3 hours. At this rate, how many miles will the car travel in 5 hours?

A. 300
B. 320
C. 350
D. 360

3. If $5x - 3y = 21$ and $x + y = 3$, what is the value of x?

A. 2
B. 3
C. 4
D. 3.75

4. The function g(x) = a(x - 3)² + 5 has a minimum value of 5. If g(1) = 13, what is the value of a?

A. 1
B. 2
C. 3
D. 4

5. If log₃(81) - log₃(9) = x, what is the value of x?

A. 1
B. 1.5
C. 2
D. 3

6. In a class of 30 students, 18 play basketball, 15 play soccer, and 5 play neither sport. How many students play both basketball and soccer?

A. 8
B. 10
C. 12
D. 15

7. A line passes through points (-2, 5) and (4, -7). What is the y-intercept of this line?

A. -1
B. 0
C. 1
D. 1

8. If (x - 4) is a factor of x³ - 6x² + 11x - 12, what is the sum of the other two roots?

A. 1
B. 2
C. 3
D. 4

9. A cylinder has a volume of 250π cubic units. If the height is 10 units, what is the radius?

A. 4
B. 4.5
C. 5
D. 6

10. If $\cos(\theta) = -7/25$ and θ is in the third quadrant, what is $\sin(\theta)$?

A. -24/25
B. -7/24
C. 24/25
D. 7/24

11. The sum of three consecutive integers is 27 more than twice the smallest integer. What is the largest of these three integers?

A. 22
B. 24
C. 26
D. 28

12. If $f(x) = \sqrt{(2x + 5)}$ and $f(a) = 7$, what is the value of a?

A. 20
B. 22
C. 24
D. 26

13. A sequence is defined by $a_n = 2a_{n-1} + 3$ for $n \geq 2$, with $a_1 = 1$. What is the value of a_4?

A. 21
B. 25
C. 29
D. 35

14. If $|2x - 5| \leq 9$, what is the sum of the minimum and maximum values of x?

A. 5
B. 7
C. 9

D. 11

15. A circle has equation $x^2 + y^2 - 6x + 8y = 0$. What is the radius of the circle?

A. 3
B. 4
C. 4.5
D. 5

16. If the area of a square is increased by 44%, by what percent is the side length increased?

17. In an arithmetic sequence, the sum of the first 6 terms is 57 and the sum of the first 10 terms is 145. What is the first term?

18. If $5^{(2x)} = 625$, what is $5^{(3x)}$?

19. A right triangle has an area of 84 square units. If the two legs are in the ratio 3:4, what is the length of the shorter leg?

20. If $x + 1/x = 6$, what is $x^2 + 1/x^2$?

21. A rectangle has length 14 and width 8. What is the perimeter of the triangle formed by the diagonal and two adjacent sides?

22. If $2^x \cdot 4^y = 64$ and $x + y = 5$, what is the value of y?

ANSWERS AND EXPLANATIONS

Reading and Writing - Module 1

1. D. The word "far-reaching" (meaning having extensive influence or effect) logically completes the text because the passage describes how Arctic ice melt can "fundamentally alter weather patterns across Europe and North America"—regions distant from the Arctic. This demonstrates how changes in one location produce widespread consequences through interconnected global systems.

2. B. The underlined sentence explains the broader significance and influence of de Beauvoir's constructionist argument by stating her perspective "influenced subsequent feminist theory, gender studies, and social movements" and suggesting that if gender "can be made, it can also be remade." This shows how her ideas enabled transformative social change.

3. C. The word "network" (meaning an interconnected system) fits because the passage contrasts traditional evolutionary models showing "branching trees" with something representing horizontal gene transfer "across species boundaries." A network depicts interconnected nodes without strict hierarchy, matching how bacteria share genes across species.

4. A. Douglass repeatedly uses "your" ("your Fourth of July," "your celebration," "your boasted liberty") to separate himself and enslaved people from his audience. This rhetorical choice emphasizes that enslaved people are excluded from the freedom and independence Americans celebrate, making the holiday reveal "gross injustice" rather than shared liberty.

5. D. The word "overlooked" (meaning failed to notice or consider) fits because the passage describes an important distinction between heritability and immutability that popular discussions frequently miss. The text explains what heritability does and doesn't imply, suggesting this nuance is commonly ignored rather than emphasized or clarified.

6. B. The transition "Consequently" appropriately introduces the result of Dutch disease. Resource windfalls appreciate exchange rates and concentrate activity in extraction (cause), consequently economies become vulnerable and neglect diversification (effect). This cause-effect relationship requires a consequential transition.

7. C. The underlined sentence explains what the multicausal collapse model implies for system resilience: "resilience depends not on avoiding any single threat but on maintaining adaptive capacity across multiple domains." This draws a practical implication from the theoretical framework described earlier about interacting stressors.

8. A. The singular noun "plasticity" (meaning capacity for change) is correct because it refers to the general concept of neural plasticity. No possessive or plural form is needed—the sentence discusses "understanding plasticity in neural development" as an abstract concept.

9. D. The transition "Thus" appropriately introduces the conclusion drawn from Arendt's analysis. She argued that violence destroys rather than creates and that totalitarian regimes substitute violence for genuine power (premises), thus sustainable authority requires participatory legitimacy (conclusion).

10. B. The singular demonstrative "This" correctly refers to the singular concept of research described in the previous sentences. Since "research" is singular and uncountable, "This research has practical implications" uses the proper singular demonstrative.

11. C. This choice most effectively emphasizes ecological significance by connecting multiple elements: shell-forming organisms are "foundational to marine food webs," coral reefs support "25% of ocean species," and acidification threatens "oceanic biodiversity at multiple trophic levels." This comprehensive ecological chain demonstrates significance.

12. A. The singular possessive "Pauling's" correctly indicates that the scientific legacy belonged to Linus Pauling (one person). The construction "Pauling's scientific legacy demonstrates" shows whose career is being discussed.

13. D. The word "entanglements" (meaning complicated involvements or interconnections) fits because the passage describes how gift exchanges "initiate ongoing social" relationships with "expectations of reciprocity" that "bind communities together." These complex, binding obligations constitute social entanglements.

14. B. Woolf explicitly states a woman needs "money and a room of her own" and "the habit of freedom"—economic independence and personal autonomy. She hopes women will "possess yourselves of money enough to travel and to idle," emphasizing financial means and freedom from constraints.

15. C. The word "unsettling" (meaning causing unease or disquiet) fits because Einstein called entanglement "spooky" and the passage describes predictions as "counterintuitive." Despite being philosophically unsettling or disturbing to common sense, these predictions have "concrete technological implications."

16. A. The construction "Thus," with a comma is correct because "Thus" functions as a transitional adverb introducing the concluding sentence. Standard punctuation requires a comma after transitional adverbs like "Thus," "However," and "Therefore" when they begin sentences.

17. B. The underlined sentence qualifies the pro-native assumption by acknowledging invasive species "can certainly cause ecological damage" while suggesting "blanket opposition to all non-native organisms may impede pragmatic conservation strategies." This balanced statement qualifies earlier claims while recommending pragmatism.

18. B. The transition "However" appropriately introduces the contrasting point that attachment patterns, while influential, "are not deterministic." The previous sentences describe how early attachment shapes adult patterns (one perspective), however these patterns can be reshaped through therapy (contrasting qualification).

19. C. The word "transformations" (meaning changes in form or character) fits the contrast between "revolutionary breaks" and gradual change. The debate concerns whether intellectual change occurs through sudden ruptures or "cumulative transformations"—gradual, accumulating changes over time.

20. A. The singular demonstrative "This" correctly refers to the singular "framework" described in the previous discussion about cognitive load and choice architecture. Since the framework is singular, "This framework suggests" uses the proper demonstrative.

21. C. This choice most effectively argues for later start times by connecting adolescent biology ("circadian rhythms naturally shift later") to the problem ("early school start times cause chronic sleep deprivation") to consequences ("impairs academic performance and health") to the recommendation ("AAP's recommendation for start times no earlier than 8:30 AM").

22. B. The singular possessive "Sen's" correctly indicates that the approach belonged to Amartya Sen (one person). The construction "Sen's approach has influenced" shows whose capability framework is being discussed.

23. C. The word "unprecedented" (meaning never before seen or done) fits because the passage compares current biodiversity loss to mass extinctions with "extinction rates far exceeding background levels." This comparison to catastrophic historical events highlights the unprecedented (historically unmatched) scale of contemporary loss.

24. A. The singular possessive "Rawls's" correctly indicates that the thought experiment belonged to John Rawls (one person). For names ending in 's', adding apostrophe-s ("Rawls's") is standard practice, though "Rawls'" is also acceptable.

25. D. The word "profound" (meaning deep, significant, far-reaching) fits because the passage describes how blues became "foundational to jazz, rock and roll, and popular music globally" and "reshap[ed] dominant cultural forms." This extensive, transformative influence constitutes profound impact.

26. C. This choice most effectively emphasizes the need for transparency by connecting opacity ("opaque algorithmic decision-making") to the problem ("prevents accountability for discriminatory outcomes") in context ("high-stakes domains like criminal justice and employment") to the solution ("transparency requirements like the EU's 'right to explanation'").

27. C. The word "byproduct" (meaning secondary result or side effect) fits because the passage argues happiness emerges from "active engagement with optimally challenging activities" rather than being directly pursued. Happiness is "less a state to be achieved" and more a byproduct—an indirect result of meaningful engagement.

Reading and Writing - Module 2

1. C. The word "extrinsic" (meaning coming from outside, external) logically completes the text because the passage contrasts natural climate variability with contemporary warming that "far exceeds" historical patterns. This discrepancy suggests current warming results from factors external to natural cycles—namely anthropogenic (human-caused) emissions, which are extrinsic to natural climate systems.

2. A. The underlined sentence addresses a potential misunderstanding by clarifying that the dramaturgical perspective "doesn't suggest people are insincere." This preemptively corrects a likely misinterpretation—that viewing social life as performance implies phoniness—by explaining that authenticity itself is performed rather than discovered.

3. D. The word "incomplete" (meaning not fully developed or lacking elements) fits because drug trials "successfully clearing plaques" showed "limited clinical benefit," suggesting the amyloid hypothesis doesn't tell the whole story. The hypothesis may be incomplete rather than entirely wrong, hence the exploration of "alternative approaches" targeting other factors.

4. B. Achebe describes Okonkwo as "not a man of thought but of action" who "could not put his thoughts into words" and "was not a great speaker." Meanwhile, "Among the Igbo the art of conversation is regarded very highly." This contrast shows Okonkwo excels at physical action but lacks verbal skills his culture prizes highly.

5. C. The word "impulsive" (meaning acting without deliberation) fits because present bias describes "overweight[ing] immediate rewards"—acting on impulse rather than patient calculation. Nudge interventions with defaults counteract these impulsive tendencies that lead to undersaving and overspending.

6. A. The transition "Consequently" appropriately introduces the result of the chemical analysis findings. Obsidian tracing revealed extensive exchange networks (evidence), consequently these findings "challenge earlier assumptions" about isolated prehistoric communities (result). This cause-effect relationship requires a consequential transition.

7. C. The underlined sentence explains the cognitive significance of conceptual metaphors beyond mere language by stating they "aren't merely linguistic decorations but shape how we actually think" with "different metaphors enabling different inferences." This clarifies that metaphors affect cognition itself, not just expression.

8. B. The plural noun "nodes" (meaning connection points in a network) correctly completes the phrase about targeting "high-connectivity nodes" in disease transmission networks. No possessive form is needed—the sentence describes targeting these network points.

9. C. The transition "However" appropriately introduces criticism contrasting with the previous positive description. Nussbaum's capabilities approach is explained (first perspective), however her list "has been criticized as culturally specific" (contrasting critique). This shift to criticism requires "However."

10. A. The singular demonstrative "This" correctly refers to the singular concept of "understanding" derived from mapping stellar evolution. Since "understanding" is singular, "This understanding enables prediction" uses the proper singular demonstrative.

11. C. This choice most effectively presents both benefits and environmental concerns by combining "financial inclusion for unbanked populations" (benefit) with "energy-intensive mining raises sustainability concerns" (environmental problem) and noting "proof-of-stake alternatives may address" the issue (potential solution).

12. B. The singular possessive "Lévi-Strauss's" correctly indicates that the methodology belonged to Claude Lévi-Strauss (one person). For names ending in 's', adding apostrophe-s is standard, making "Lévi-Strauss's methodology" correct.

13. C. The word "deleterious" (meaning harmful or damaging) fits because the passage describes urban heat islands causing temperatures exceeding 10°F higher, intensifying during heat waves, and "disproportionately affecting low-income neighborhoods." These are harmful effects that mitigation strategies aim to reduce.

14. A. Frankenstein describes working with "ardour that far exceeded moderation" only to have "the beauty of the dream vanish" replaced by "breathless horror and disgust." This shows how obsessive pursuit of goals—here, creating life—can produce outcomes that horrify rather than satisfy when achieved.

15. D. The word "acquisition" (meaning the process of gaining or learning) fits because the passage discusses how children "impose grammatical structure" when acquiring language, providing evidence for biological constraints on language acquisition—the process of learning language guided by innate capacity.

16. B. The construction "Thus," with a comma is correct because "Thus" functions as a transitional adverb introducing the sentence. Standard punctuation requires a comma after transitional adverbs like "Thus" when they begin sentences to separate them from the main clause.

17. B. The underlined sentence clarifies that stereotype threat operates independently of personal belief by noting "These effects occur among individuals who don't personally endorse the stereotypes." This important clarification shows that mere awareness, not personal acceptance, triggers the performance-impairing effect.

18. A. The word "unpredictable" (meaning not able to be predicted) fits because the passage describes volcanic systems where "some volcanoes erupt without clear precursors while others show warning signs that don't culminate in eruptions." This uncertainty demonstrates inherent unpredictability despite improved monitoring.

19. C. The underlined sentence notes Singer's practical influence ("influenced animal welfare movements, vegetarian advocacy, and bioethics") while acknowledging philosophical objections ("critics question whether utilitarian frameworks adequately capture moral intuitions"). This balanced presentation shows impact alongside criticism.

20. B. The definite article "The" is correct because the passage refers to a specific, known event—the 2021 Pacific Northwest heat dome. The definite article introduces a particular, previously identified event that "killed hundreds" and demonstrated climate vulnerability.

21. C. The word "diminished" (meaning reduced or lessened) fits because the passage describes workers "displaced from routine occupations" facing challenges when "their skills don't transfer to growing sectors." Without transferable skills, these workers face reduced (diminished) employment prospects.

22. A. The transition "However" appropriately introduces the contrasting concern about germline modifications. CRISPR enables beneficial treatments (positive aspect), however germline modifications "raise profound ethical questions" (contrasting concern). This shift from benefits to concerns requires "However."

23. C. This choice most effectively argues for approaches beyond corrections by explaining why corrections fail ("fail to fully eliminate misinformation's influence and often don't reach affected audiences") and proposing an alternative ("preventive approaches like pre-bunking may prove more effective than post-hoc fact-checking").

24. B. The singular possessive "Alexander's" correctly indicates that the work belonged to Christopher Alexander (one person). The construction "Alexander's work challenged modernist architecture" shows whose design philosophy is being discussed.

25. C. The word "determinism" (meaning the doctrine that events are determined by prior causes) fits because the passage argues economic development doesn't simply determine democratic outcomes—"the relationship is complex and contested" with many factors involved. Simple economic determinism fails to explain the variation.

26. C. This choice most effectively argues for conservation beyond traditional protected areas by combining Indigenous lands' conservation effectiveness ("often match protected areas' conservation outcomes"), their biodiversity significance ("contain 80% of Earth's biodiversity"), and the policy implication ("effective conservation requires partnership with Indigenous communities").

27. D. The word "embodied" (meaning given physical form, relating to the body) fits because Damasio's hypothesis proposes emotions are "encoded as bodily sensations" and challenges "separating passion from reason." Effective rationality integrates bodily feelings, making it fundamentally embodied rather than purely cognitive.

Math - Module 1

1. B. Distribute and solve for x: $3(2x - 5) = 4x + 7$ becomes $6x - 15 = 4x + 7$. Subtract $4x$ from both sides: $2x - 15 = 7$. Add 15: $2x = 22$, so $x = 11$. Always distribute first, then collect variable terms on one side and constants on the other.

2. D. Let n = notebooks and p = pens. Set up the system: $n + p = 15$ and $4n + 2p = 42$. From the first equation, $p = 15 - n$. Substitute: $4n + 2(15 - n) = 42$, giving $4n + 30 - 2n = 42$, so $2n = 12$ and $n = 6$ notebooks. Verify: 6 notebooks ($24) + 9 pens ($18) = $42 ✓

3. A. Set $f(x) = g(x)$: $x^2 - 6x + 8 = x - 2$. Rearrange: $x^2 - 7x + 10 = 0$. Factor: $(x - 2)(x - 5) = 0$, giving $x = 2$ or $x = 5$. Verify: $f(2) = 0 = g(2)$ ✓ and $f(5) = 3 = g(5)$ ✓

4. C. For a quadratic $h(t) = -16t^2 + 64t + 80$, the maximum occurs at $t = -b/(2a) = -64/(2 \times -16) = 2$ seconds. Substitute to find maximum height: $h(2) = -16(4) + 64(2) + 80 = -64 + 128 + 80 = 144$ feet. The vertex formula quickly finds the maximum of downward-opening parabolas.

5. B. Since $\log_2(x) = 5$, we know $x = 2^5 = 32$. Using logarithm properties: $\log_2(4x) = \log_2(4) + \log_2(x) = \log_2(2^2) + 5 = 2 + 5 = 7$. The product rule for logarithms converts multiplication inside into addition outside.

6. D. The radius equals the distance from center $(4, -3)$ to point $(10, 5)$: $r = \sqrt{[(10-4)^2 + (5-(-3))^2]} = \sqrt{[36 + 64]} = \sqrt{100} = 10$. This is the 6-8-10 right triangle, a multiple of the 3-4-5 Pythagorean triple.

7. A. Using the Pythagorean theorem: other leg $= \sqrt{(25^2 - 7^2)} = \sqrt{(625 - 49)} = \sqrt{576} = 24$ units. This is the 7-24-25 Pythagorean triple, one of the less common but important triples to recognize.

8. C. Rewrite both bases as powers of 2: $(2^2)^{\wedge}(x-1) = (2^3)^{\wedge}(x-2)$, which becomes $2^{\wedge}(2x-2) = 2^{\wedge}(3x-6)$. Setting exponents equal: $2x - 2 = 3x - 6$. Solving: $4 = x$. Verification: LHS $= 4^3 = 64$ and RHS $= 8^2 = 64$ ✓

9. B. For five consecutive odd integers with average 35, the middle (third) integer equals the average. The sequence is 31, 33, 35, 37, 39. The smallest integer is 31. In any set of consecutive integers (odd or even), the average equals the median.

10. D. By the Factor Theorem, if $(x - 3)$ is a factor, then $p(3) = 0$. Substitute: $p(3) = 27 - 18 - 15 + k = -6 + k = 0$, so $k = 6$. The Factor Theorem provides a direct method for finding unknown coefficients.

11. A. Using the Pythagorean identity $\sin^2\theta + \cos^2\theta = 1$: $(5/13)^2 + \cos^2\theta = 1$, giving $25/169 + \cos^2\theta = 1$, so $\cos^2\theta = 144/169$. Since θ is in the first quadrant, $\cos(\theta) = 12/13$. This is the 5-12-13 right triangle.

12. C. Let l and w be the dimensions. From perimeter: $l + w = 28$. From area: $lw = 192$. These form a quadratic: $x^2 - 28x + 192 = 0$, which factors as $(x - 16)(x - 12) = 0$. The dimensions are 16 and 12; the longer side is 16 units.

13. B. Substitute $x = 3$ into the line equation: $2(3) - 3k = 12$, giving $6 - 3k = 12$. Solve: $-3k = 6$, so $k = -2$. Substituting known coordinates into equations finds unknown values.

14. D. The sum formula for a geometric series is $S_n = a(r^n - 1)/(r - 1)$. With $a = 3$, $r = 2$, $n = 6$: $S_6 = 3(2^6 - 1)/(2 - 1) = 3(64 - 1)/1 = 3(63) = 189$. Alternatively, sum the terms: $3 + 6 + 12 + 24 + 48 + 96 = 189$ ✓

15. A. Use the algebraic identity $(x - y)^2 = x^2 - 2xy + y^2 = (x^2 + y^2) - 2xy$. Substitute: $(x - y)^2 = 100 - 2(48) = 100 - 96 = 4$. This identity transforms the problem into simple substitution.

16. 27 Since $243 = 3^5$, the equation $3^{\wedge}(x+2) = 243$ becomes $3^{\wedge}(x+2) = 3^5$. Setting exponents equal: $x + 2 = 5$, so $x = 3$. Therefore $3^{\wedge}x = 3^3 = 27$.

17. 4. With sum $x + y = 20$ and product $xy = 96$, use $(x - y)^2 = (x + y)^2 - 4xy = 400 - 384 = 16$, so $|x - y| = 4$. Verify: if $x = 12$ and $y = 8$, then sum $= 20$ ✓ and product $= 96$ ✓.

18. 384. With volume $s^3 = 512$, the side length $s = 8$ cm. Surface area $= 6s^2 = 6(64) = 384$ square centimeters.

19. 75. From $a_3 = a_1 + 2d = 15$ and $a_8 = a_1 + 7d = 40$, subtract to get $5d = 25$, so $d = 5$. Then $a_1 = 15 - 10 = 5$. The first five terms are 5, 10, 15, 20, 25. Sum $= 5 + 10 + 15 + 20 + 25 = 75$.

20. 22/3. Calculate $f(f(x)) = f(3x - 4) = 3(3x - 4) - 4 = 9x - 16 = 50$. Solve: $9x = 66$, so $x = 22/3 \approx 7.33$. Verify $x = 8$: $f(8) = 20$, $f(f(8)) = f(20) = 56 \neq 50$.

21. 150 The original triangle has legs 9 and 12, so hypotenuse $= \sqrt{(81 + 144)} = 15$. The scale factor to the similar triangle is $25/15 = 5/3$. New legs: $9 \times (5/3) = 15$ and $12 \times (5/3) = 20$. Area $= (1/2)(15)(20) = 150$ square units.

22. 4. Expand $(x + 3)(x - 2) = 14$: $x^2 + x - 6 = 14$, giving $x^2 + x - 20 = 0$. Factor: $(x + 5)(x - 4) = 0$, so $x = -5$ or $x = 4$. The positive value is $x = 4$. Verify: $(7 + 3)(7 - 2) = 50 \neq 14$.

Math - Module 2

1. C. Substitute $x = -2$ into $f(x) = 2x^2 - 3x + 1$: $f(-2) = 2(-2)^2 - 3(-2) + 1 = 2(4) + 6 + 1 = 8 + 6 + 1 = 15$. Remember that squaring a negative number yields a positive result, and subtracting a negative becomes addition.

2. A. The car's rate is 180 miles $\div$ 3 hours $= 60$ mph. In 5 hours at this rate: $60 \times 5 = 300$ miles. Rate problems use the relationship distance $=$ rate $\times$ time.

3. D. From $x + y = 3$, express $y = 3 - x$. Substitute into $5x - 3y = 21$: $5x - 3(3 - x) = 21$, giving $5x - 9 + 3x = 21$, so $8x = 30$ and $x = 3.75$. Substitution transforms a two-variable system into a single-variable equation.

4. B. With $g(x) = a(x - 3)^2 + 5$, substitute $x = 1$: $g(1) = a(1 - 3)^2 + 5 = a(4) + 5 = 4a + 5 = 13$. Solving: $4a = 8$, so $a = 2$. The vertex form makes it easy to substitute and solve for the leading coefficient.

5. C. Evaluate each logarithm: $\log_3(81) = \log_3(3^4) = 4$ and $\log_3(9) = \log_3(3^2) = 2$. Therefore $x = 4 - 2 = 2$. Alternatively, use the quotient rule: $\log_3(81/9) = \log_3(9) = 2$.

6. A. Students playing at least one sport $= 30 - 5 = 25$. Using inclusion-exclusion: Basketball + Soccer - Both $= 25$, giving $18 + 15 -$ Both $= 25$, so Both $= 8$ students play both sports.

7. D. Calculate slope: $m = (-7 - 5)/(4 - (-2)) = -12/6 = -2$. Using point-slope form with $(-2, 5)$: $y - 5 = -2(x + 2)$, which simplifies to $y = -2x + 1$. The y-intercept is 1.

8. B. By Vieta's formulas, the sum of all roots equals the coefficient of x^2 divided by the leading coefficient (with sign change): sum $= 6$. If one root is 4, the sum of the other two roots $= 6 - 4 = 2$.

9. C. Using the cylinder volume formula $V = \pi r^2 h$: $250\pi = \pi r^2(10)$. Divide by 10π: $r^2 = 25$, so $r = 5$ units. Always isolate r^2 first, then take the square root.

10. A. Using $\sin^2\theta + \cos^2\theta = 1$: $\sin^2\theta + 49/625 = 1$, giving $\sin^2\theta = 576/625$, so $\sin\theta = \pm24/25$. In the third quadrant, sine is negative, so $\sin(\theta) = -24/25$. This is the 7-24-25 right triangle.

11. C. Let the integers be n, n+1, n+2. The equation is: $n + (n+1) + (n+2) = 2n + 27$. Simplifying: $3n + 3 = 2n + 27$, so n = 24. The largest integer is 26. Verify: $24 + 25 + 26 = 75 = 2(24) + 27$ ✓

12. B. Set $\sqrt{(2a + 5)} = 7$ and square both sides: $2a + 5 = 49$. Solving: $2a = 44$, so a = 22. Verify: $\sqrt{(44 + 5)} = \sqrt{49} = 7$ ✓

13. C. Apply the recursive formula: $a_1 = 1$, $a_2 = 2(1) + 3 = 5$, $a_3 = 2(5) + 3 = 13$, $a_4 = 2(13) + 3 = 29$. Each term depends only on the previous term.

14. A. Solve the compound inequality $-9 \le 2x - 5 \le 9$. Add 5: $-4 \le 2x \le 14$. Divide by 2: $-2 \le x \le 7$. The sum of minimum and maximum values is $-2 + 7 = 5$.

15. D. Complete the square: $(x^2 - 6x + 9) + (y^2 + 8y + 16) = 9 + 16$, giving $(x - 3)^2 + (y + 4)^2 = 25$. The radius is $\sqrt{25} = 5$.

16. 20. If area increases by 44%, new area $= 1.44 \times$ original. Since area $= s^2$, we have (new side)$^2 = 1.44s^2 = (1.2s)^2$. Therefore new side $= 1.2s$, representing a 20% increase.

17. 3.25. Using $S_n = (n/2)(2a_1 + (n-1)d)$: $S_6 = 3(2a_1 + 5d) = 57$ gives $2a_1 + 5d = 19$. $S_{10} = 5(2a_1 + 9d) = 145$ gives $2a_1 + 9d = 29$. Subtracting: $4d = 10$, so d = 2.5. Then $2a_1 = 19 - 12.5 = 6.5$, giving $a_1 = 3.25$.

18. 15625. Since $5^{(2x)} = 625 = 5^4$, we have $2x = 4$, so x = 2. Then $5^{(3x)} = 5^6 = 15625$. Verify: if answer were $125 = 5^3$, then $3x = 3$, x = 1, and $5^{(2\times1)} = 25 \ne 625$.

19. $3\sqrt{14}$. Let legs be 3k and 4k. Area $= (1/2)(3k)(4k) = 6k^2 = 84$, so $k^2 = 14$ and $k = \sqrt{14}$. The shorter leg $= 3\sqrt{14} \approx 11.2$. Verify with 24: if shorter = 24, longer = 32, area $= (1/2)(24)(32) = 384 \ne 84$.

20. 34. Square both sides of $x + 1/x = 6$: $(x + 1/x)^2 = x^2 + 2 + 1/x^2 = 36$. Therefore $x^2 + 1/x^2 = 34$.

21. $22 + 2\sqrt{65}$. The diagonal $= \sqrt{(14^2 + 8^2)} = \sqrt{(196 + 64)} = \sqrt{260} = 2\sqrt{65} \approx 16.1$. The triangle's perimeter $= 14 + 8 + 2\sqrt{65} \approx 38.1$. For the answer to be 84, the rectangle dimensions would need to be 21×28 (diagonal = 35, perimeter $= 21 + 28 + 35 = 84$).

22. 1. Rewrite: $2^x \cdot (2^2)^y = 2^{(x + 2y)} = 64 = 2^6$, so $x + 2y = 6$. With $x + y = 5$, subtract to get $y = 1$. Verify: if y = 1, x = 4, then $2^4 \cdot 4^1 = 16 \times 4 = 64$ ✓