GED SIMULATION #16

Full-Length Simulated Exam

RLA SECTION

Question 1:

Which persuasive technique is at play in the statement:
"As an experienced doctor, I highly recommend this treatment for better health outcomes."

A) Appeal to authority
B) Appeal to emotion
C) Bandwagon
D) Ad hominem

Question 2:

Identify the persuasive technique used here:
"You deserve the best, and our premium service ensures just that."

A) Appeal to emotion
B) Logical reasoning
C) Appeal to authority
D) Red herring

Question 3:

What technique is being used in the following argument?
"Only a fool would ignore these proven benefits of our product."

A) Appeal to logic
B) Ad hominem
C) Appeal to fear
D) Begging the question

Question 4:

Determine the persuasive technique in this statement:
"Our community has always valued education, and that's why you should support the new school funding initiative."

A) Appeal to tradition
B) Slippery slope
C) Bandwagon
D) False cause

Question 5:

Which persuasive technique is demonstrated by the following line?
"Imagine a world where every child has access to quality education. That’s the world we can create together."

A) Appeal to authority

B) Appeal to emotion
C) Logical reasoning
D) Slippery slope

Question 6:

Identify the persuasive technique used:
"Our product is the most reliable on the market, backed by years of positive customer reviews."

A) Appeal to emotion
B) Appeal to authority
C) Bandwagon
D) Logical reasoning

Question 7:

What technique is employed in the statement:
"If you care about the future of our planet, you must take action now."

A) Appeal to fear
B) Slippery slope
C) Straw man
D) Circular reasoning

Question 8:

Which persuasive method is shown here?
"By choosing our eco-friendly packaging, you are contributing to a sustainable future."

A) Appeal to authority
B) Appeal to emotion
C) Appeal to logic
D) Red herring

Question 9:

Determine the persuasive technique used:
"Thousands of satisfied customers have already made the switch to our service."

A) Appeal to emotion
B) Logical reasoning
C) Bandwagon
D) Ad hominem

Question 10:

Identify the technique in the following persuasion:
"Not investing in this opportunity is equivalent to leaving money on the table."

A) False dilemma

B) Appeal to fear
C) Slippery slope
D) Bandwagon

Question 11

What persuasive technique is being used here?
"Our charity helps the most vulnerable members of society, ensuring a better tomorrow for everyone."

A) Appeal to emotion
B) Appeal to authority
C) Logical reasoning
D) False cause

Question 12:

Which technique is illustrated by this statement?
"You need our software to stay competitive in today's market."

A) Appeal to tradition
B) Slippery slope
C) Necessity
D) Red herring

Question 13:

Identify the persuasive technique:
"Don't be the last to experience the benefits of our innovative technology."

A) Appeal to logic
B) Appeal to fear
C) Bandwagon
D) Ad hominem

Question 14:

What technique is used in the following passage?
"Our solution is simple, effective, and guaranteed to meet all your needs."

A) Begging the question
B) Appeal to authority
C) Alliteration
D) Appeal to logic

Question 15:

Determine the persuasive technique in this argument:
"Join the millions who have already made the switch and enjoy unparalleled benefits."

A) Appeal to emotion

B) Appeal to authority
C) Bandwagon
D) Slippery slope

Question 16:

Read the following passage and answer the question below.

"The advent of online education platforms has made learning more accessible to people around the world. Students can now enroll in courses from prestigious universities without the need to relocate. This accessibility has democratized education but also highlighted the digital divide, where not everyone has equal access to technology."

What is one effect of the rise of online education platforms?

A. Decreased accessibility to education
B. Elimination of the digital divide
C. Democratization of education
D. Necessity to relocate for most students

Question 17:

Read the following passage and answer the question below.

"The increase in electric vehicle (EV) adoption is contributing to a decline in oil demand. As more consumers choose EVs over traditional gasoline-powered cars, the oil industry faces challenges in maintaining profitability. Additionally, this shift supports environmental goals by reducing carbon emissions."

What is a primary effect of the increase in electric vehicle adoption?

A. Rise in oil demand
B. Challenges in oil industry profitability
C. Increase in carbon emissions
D. Decline in environmental goals

Question 18:

Read the following passage and answer the question below.

"Advancements in artificial intelligence (AI) have automated many routine tasks across various industries. This automation increases efficiency and reduces human error but also raises concerns about job displacement and the ethical use of AI technologies."

What is a significant effect of advancements in artificial intelligence?

A. Decreased efficiency in industries
B. Elimination of human error completely
C. Concerns about job displacement
D. Reduction in the use of AI technologies

Question 19:

Read the following passage and answer the question below.

"Climate change has led to more frequent and severe weather events, such as hurricanes, floods, and droughts. These events cause extensive damage to infrastructure, disrupt economies, and pose risks to human health and safety."

What is one major effect of climate change mentioned in the passage?

A. Decrease in the frequency of hurricanes
B. Improvement in infrastructure resilience
C. Disruption of economies
D. Reduction in risks to human health

Question 20:

Read the following passage and answer the question below.

"The global shift towards renewable energy has accelerated due to growing environmental concerns and the decreasing cost of technologies like solar and wind power. This transition not only helps mitigate climate change but also fosters economic growth through the creation of green jobs and the development of new industries."

What is a primary effect of the global shift towards renewable energy?

A. Increase in fossil fuel dependence
B. Mitigation of climate change
C. Decline in green job opportunities
D. Decrease in economic growth

Question 21:

Read the following passage and answer the question below.

"The decline of traditional brick-and-mortar retail stores has been driven by the rise of e-commerce. Online shopping offers greater convenience and often lower prices, attracting more consumers. This shift has forced many physical stores to adapt by enhancing their online presence or focusing on unique in-store experiences."

What is a main effect of the rise of e-commerce on traditional retail stores?

A. Increase in the number of brick-and-mortar stores
B. Greater convenience for consumers through physical shopping
C. Migration of consumers to online shopping platforms
D. Reduction in the need for online presence for retailers

Question 22:

Read the following passage and answer the question below.

"Excessive use of plastic has led to significant environmental pollution, particularly in oceans. Marine life is adversely affected as animals ingest or become entangled in plastic debris. In response, many countries are implementing bans on single-use plastics and promoting recycling initiatives to address this issue."

What is a direct consequence of excessive plastic use mentioned in the passage?

A. Improvement in marine life health
B. Reduction in plastic pollution in oceans
C. Adverse effects on marine animals
D. Decrease in recycling initiatives

Question 23:

Read the following passage and answer the question below.

"The aging population in many developed countries poses challenges for healthcare systems. As the number of elderly individuals increases, there is a higher demand for medical services, long-term care, and support systems. This demographic shift requires strategic planning to ensure sustainable healthcare provision."

What is a significant effect of an aging population on healthcare systems?

A. Decrease in demand for medical services
B. Lower need for long-term care
C. Higher demand for medical and support services
D. Reduction in the elderly population

Question 24:

Read the following passage and answer the question below.

"The implementation of recycling programs in urban areas has led to a decrease in waste sent to landfills. By encouraging residents to recycle paper, plastic, and glass, cities can reduce environmental impact and conserve natural resources. Additionally, recycling initiatives often create jobs in the processing and management sectors."

What is one primary effect of implementing recycling programs in urban areas?

A. Increase in landfill waste
B. Reduction in environmental impact
C. Decrease in conservation of natural resources
D. Elimination of jobs in the recycling sector

Question 25:

Read the following passage and answer the question below.

"The expansion of public transportation systems in cities has improved mobility for residents, reduced traffic congestion, and decreased greenhouse gas emissions. Efficient

public transit options encourage people to leave their cars at home, fostering a more sustainable urban environment."

What is a key effect of expanding public transportation systems in cities?

A. Increased traffic congestion
B. Higher greenhouse gas emissions
C. Improved mobility and reduced reliance on cars
D. Decrease in public transit usage

Question 26:

Read the following passage and answer the question below.

"Advancements in medical technology, such as robotic surgery and telemedicine, have enhanced the quality of healthcare. These innovations allow for more precise procedures, remote consultations, and better patient monitoring, leading to improved patient outcomes and accessibility to medical services."

What is a major effect of advancements in medical technology?

A. Decreased precision in medical procedures
B. Reduced accessibility to medical services
C. Improved patient outcomes and remote consultations
D. Elimination of the need for medical professionals

Question 27:

Read the following passage and answer the question below.

"Globalization has increased the interdependence of world economies through trade, investment, and technology transfer. This interconnectedness has led to economic growth and access to a wider variety of goods and services. However, it has also resulted in challenges such as cultural homogenization and economic vulnerabilities to global market fluctuations."

What is one significant effect of globalization on world economies?

A. Decreased economic growth
B. Reduced variety of goods and services
C. Increased interdependence and economic growth
D. Elimination of economic vulnerabilities

Question 28:

Read the following passage and answer the question below.

"The rise of social media has transformed the way people communicate, share information, and engage with each other. It has enabled instant connectivity across the globe, fostering communities and movements. However, it has also been linked to issues like misinformation, cyberbullying, and reduced face-to-face interactions."

What is a primary effect of the rise of social media according to the passage?

A. Decrease in global connectivity
B. Elimination of cyberbullying
C. Transformation of communication and information sharing
D. Reduction in online communities

Question 29:

Read the following passage and answer the question below.

"Implementing energy-efficient practices in homes and businesses can lead to significant cost savings and environmental benefits. By reducing energy consumption, individuals contribute to lower utility bills and decrease their carbon footprint. Additionally, energy-efficient technologies often have longer lifespans and require less maintenance."

What is one major effect of implementing energy-efficient practices?

A. Increased energy consumption
B. Higher utility bills
C. Decrease in carbon footprint
D. Shorter lifespan of technologies

Question 30:

Which element is essential in creating effective satire?

A. Clear and direct praise
B. Exaggeration and irony
C. Neutral and unbiased language
D. Detailed factual accuracy

Question 31:

Identify the satirical element in the following statement: "Sure, let's add more taxes. Who needs roads anyway?"

A. Sarcasm
B. Alliteration
C. Onomatopoeia
D. Simile

Question 32:

What distinguishes satire from mere comedy?

A. Satire always makes people laugh
B. Satire aims to provoke thought and critique, not just entertain
C. Comedy is always serious, while satire is not

D. There is no difference between satire and comedy

Question 33:

Which of the following is an example of a satirical work?

A. "A Midsummer Night's Dream" by William Shakespeare
B. "Animal Farm" by George Orwell
C. "Pride and Prejudice" by Jane Austen
D. "To Kill a Mockingbird" by Harper Lee

Question 34:

In satire, what is the role of irony?

A. To provide clear and straightforward messages
B. To create confusion among readers
C. To convey the opposite of what is being said for critical effect
D. To describe actions in a literal sense

Question 35:

Which of the following statements is an example of satire?

A. "The sun rises in the east and sets in the west."
B. "I absolutely love waiting in endless lines at the DMV."
C. "Rainbows are beautiful natural phenomena."
D. "Mount Everest is the tallest mountain in the world."

Question 36:

How does parody serve as a form of satire?

A. By imitating and exaggerating the style of another work to critique it
B. By telling a completely unrelated story
C. By avoiding any imitation of existing works
D. By focusing solely on factual accuracy

Question 37:

Which of the following best describes the tone typically found in satirical writing?

A. Solemn and serious
B. Light-hearted and purely humorous
C. Ironic and mocking
D. Neutral and objective

Question 38:

What is a common target of satire in contemporary literature?

A. Mythological creatures
B. Social norms and political systems
C. Natural landscapes
D. Purely fictional characters without relevance to society

Question 39:

In Jonathan Swift's "A Modest Proposal," what is the satirical solution he suggests to address poverty?

A. Building more housing
B. Selling indentured servants
C. Eating children
D. Increasing charity organizations

Question 40:

Which author is renowned for using satire to criticize political and social issues in his works?

A. Ernest Hemingway
B. Mark Twain
C. J.K. Rowling
D. F. Scott Fitzgerald

Question 41:

What effect does satire aim to have on its audience?

A. To entertain without any critique
B. To inform without any emotional impact
C. To provoke thought and inspire change through humor and criticism
D. To provide detailed historical accounts

Question 42:

Which literary device is often employed in satire to emphasize the absurdity of a subject?

A. Metaphor
B. Hyperbole
C. Alliteration
D. Onomatopoeia

Question 43:

In the context of satire, what is the significance of a "mock hero"?

A. A character who lacks any heroic qualities
B. A parody of traditional heroic figures to highlight their flaws
C. A real-life hero celebrated without critique
D. A mythical creature with no relevance to societal issues

Question 44:

Why is subtlety important in effective satirical writing?

A. It makes the critique less obvious and encourages deeper analysis
B. It ensures that the message is clear and straightforward
C. It helps in avoiding any negative reactions from the audience
D. It allows the author to focus solely on humorous elements without any serious message

MATH SECTION

1. Simplify: $\frac{x^2y - 5x^2y^2}{x^2y}$

A. $5 + x^2y^2$
B. $1 - 5x$
C. None of the other answers
D. $y - 5y$
E. $1 - 5y$

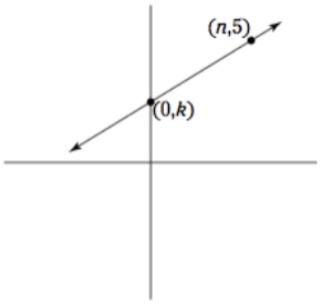
2. Which of the following represents the domain of f(x) where: f(x) = $(x - 2)^{\frac{4}{5}} + 5$

A. $x > 3$
B. $x < 0$
C. $x < 2$
D. $x > 0$
E. x is all real numbers

3. On the xy plane, what is the area of a circle with the following equation:
$(x + 2)^2 + (y - 3)^2 = 64$

A. 64π
B. 50π
C. 13π
D. 16π
E. 8π

4. If the graph has an equation of $y = 7x + 3$, what is the value of $k - n$?



A. $\frac{13}{7}$
B. $\frac{19}{7}$
C. $\frac{2}{7}$
D. 5
E. 3

5. What line is parallel to 2x + 3y = 6 at (3,2)?

A. $y = -\frac{3}{2}x + 4$

B. $y = -\frac{2}{3}x + 4$

C. $y = -\frac{2}{3}x - 4$

D. $y = -\frac{3}{2}x + 8$

6. A line is defined by the following equation: 2x − 4y = 6

What is the slope of a line that is perpendicular to the line above?

A. $\frac{1}{2}$

B. −2

C. 2

D. $-\frac{1}{2}$

E. 4

7. What is the x-coordinate of the point in the standard (x,y) coordinate plane at which the two lines y = 4x + 8 and y = 3x - 7 intersect?

A. -15
B. 15
C. 12
D. -7
E. 1

8. Expand the following expression: $(2x)(x + 1)^2$

A. $x^3 + 4x^2 + 2x$
B. $2x^3 + 4x^2 + 2x$
C. $x^2 + 2x + 1$
D. $x^3 + 2x^2 + x$
E. $2x^2 + 4x + 2$

9. Factor the following equation: $x^3 - 2x^2 + x$

A. $x(x - 1)(x - 1)$
B. $x^2 (x - 1)^2$
C. $x^2 (x - 1)$

D. $(x - 1)^2$
E. $(x - 1)^3$

10. If the inequality $|x| < |z|$ is true, then which of the following must be true?

A. $x > 0$
B. None of the other answers
C. $x > z$
D. $x = z$
E. $x < z$

11. Given that $2x + 1 = 3x - 2$, what is the value of x?

A. $\frac{5}{7}$
B. $\frac{3}{2}$
C. -1
D. 2
E. 3

12. Solve: $x^2 - 5x + 6$

A. None of the other answers
B. -2 and -3
C. 2 and -3
D. -2 and 3
E. 2 and 3

13. Solve for x. $|x - 4| + 7 = 14$

A. $x = -3$ or 11
B. $x = 3$ or -11
C. $x = 3$ or 11
D. None of the other answers
E. $x = -3$ or -11

14. Solve:

$2x - 3y = 10$
$-3x + 4y = -14$
What is the sum of x and y?

A. 5
B. -1
C. 4
D. 0
E. -3

15. Find the value of x where: $4^x \cdot 2^{x+2} = 1$

A. $\frac{2}{3}$

B. -2

C. $\frac{-2}{3}$

D. 0

E. 2

16. If q = 2, what is the value of the equation $q(q-7)^2$?

A. 50
B. 100
C. 10
D. −50
E. 25

17. AB = 20.

A and B are integers; they may or may not be distinct.

Which of the following could be equal to A−B?

A. 9
B. 6
C. 7
D. 8

18. Evaluate $(2(x^3)^2)^2$

A. $4x^{12}$
B. x^7
C. $2x^6$
D. $2x^{12}$
E. $9x^{18}$

19. The solution of $\sqrt{x-3} > 2$ is the set of all real numbers x such that:

A. x < 7
B. x > 7
C. x > 5
D. x > 3
E. x > 1

20. If x ■ y is defined by the formula $(x^3 - y)^2$ - x , what is 2 ■ 1 equivalent to?

A. 34
B. −1
C. 47
D. 0
E. 49

SOCIAL STUDIES SECTION

Question 1:

Which amendment in the Bill of Rights guarantees freedom of speech, religion, and the press?

A) Second Amendment
B) Fourth Amendment
C) First Amendment
D) Fifth Amendment

Question 2:

What principle ensures that no single branch of government becomes too powerful?

A) Federalism
B) Separation of powers
C) Checks and balances
D) Popular sovereignty

Question 3:

Which amendment protects individuals from unreasonable searches and seizures?

A) Third Amendment
B) Fourth Amendment
C) Fifth Amendment
D) Sixth Amendment

Question 4:

What process is required to officially add an amendment to the United States Constitution?

A) A simple majority vote in both houses of Congress
B) Approval by three-fourths of the state legislatures
C) A national referendum
D) Ratification by the Supreme Court

Question 5:

Which amendment guarantees the right to a speedy and public trial, an impartial jury, and the right to counsel?

A) Fifth Amendment
B) Sixth Amendment
C) Seventh Amendment
D) Eighth Amendment

Question 6:

How many amendments are included in the Bill of Rights?

A) Five
B) Ten
C) Fifteen
D) Twenty

Question 7:

Which amendment abolished slavery in the United States?

A) 13th Amendment
B) 14th Amendment
C) 15th Amendment
D) 16th Amendment

Question 8:

What is the role of the Judicial Branch as defined by the Constitution?

A) To create laws
B) To enforce laws
C) To interpret laws and ensure they are applied fairly
D) To manage the nation's finances

Question 9:

Which Supreme Court case established the principle of judicial review?

A) Brown v. Board of Education
B) Marbury v. Madison
C) Plessy v. Ferguson
D) Miranda v. Arizona

Question 10:

What event sparked the Montgomery Bus Boycott in 1955?

A) The assassination of Martin Luther King Jr.
B) Rosa Parks refusing to give up her seat on a bus
C) The integration of Little Rock Central High School
D) The passage of the Civil Rights Act

Question 11:

Which organization was founded by Martin Luther King Jr. to oversee nonviolent protests?

A) NAACP
B) SNCC
C) CORE

D) SCLC

Question 12:

What was the significance of the Brown v. Board of Education Supreme Court decision in 1954?

A) It legalized segregation in public schools.
B) It declared state laws establishing separate public schools for black and white students unconstitutional.
C) It granted African Americans the right to vote.
D) It established the Civil Rights Act.

Question 13:

Which act, passed in 1964, outlawed discrimination based on race, color, religion, sex, or national origin?

A) Voting Rights Act
B) Civil Rights Act
C) Fair Housing Act
D) Emancipation Proclamation

Question 14:

Who was the African American woman whose refusal to give up her bus seat became a pivotal moment in the Civil Rights Movement?

A) Ella Baker
B) Rosa Parks
C) Fannie Lou Hamer
D) Diane Nash

Question 15:

What was the main goal of the Student Nonviolent Coordinating Committee (SNCC) during the Civil Rights Movement?

A) To litigate cases in the Supreme Court
B) To organize nonviolent protests and empower African American youth
C) To provide legal representation for civil rights cases
D) To negotiate with politicians for policy changes

Question 16:

Which march in 1963 was a significant event aimed at advocating for civil and economic rights for African Americans?

A) Selma to Montgomery March
B) March on Washington for Jobs and Freedom
C) Birmingham Campaign

D) Freedom Rides

Question 17:

Who was the first African American Supreme Court Justice, appointed in 1967?

A) Thurgood Marshall
B) Clarence Thomas
C) Sonia Sotomayor
D) Ruth Bader Ginsburg

Question 18:

What strategy, advocated by leaders like Martin Luther King Jr., emphasized nonviolent resistance to achieve civil rights goals?

A) Armed self-defense
B) Economic boycott
C) Nonviolent civil disobedience
D) Political lobbying

Question 19:

Which amendment to the U.S. Constitution granted women the right to vote?

A) The 15th Amendment
B) The 19th Amendment
C) The 24th Amendment
D) The 26th Amendment

Question 20:

Which Supreme Court case established the principle of judicial review?

A) Sedition Act
B) Plessy v. Ferguson
C) Brown v. Board of Education
D) Marbury v. Madison

Question 21:

Which of the following are common methods used by interest groups to influence legislation?

A) Lobbying
B) Grassroots organizing
C) Political action committees (PACs)
D) All of the above

Question 22:

What is the system of government in which power is divided between a central authority and constituent political units?

A) Federalism
B) Monarchy
C) Totalitarianism
D) Anarchy

Question 23:

The U.S. Congress is an example of which type of legislative system?

A) Bicameral legislature
B) Unicameral legislature
C) Tricameral legislature
D) None of the above

Question 24:

Which of the following is a check that the Senate has over the executive branch?

A) The President can unilaterally pass laws without Congress.
B) The Senate approves treaties negotiated by the President.
C) The House of Representatives has no role in the impeachment process.
D) The Supreme Court appoints judges to the executive branch.

Question 25:

If there is a surplus in the market, what typically happens to the price of the good?

A. The price increases.
B. The price decreases.
C. The price remains unchanged.
D. Demand increases while supply decreases.

Question 26:

Which of the following factors can cause the demand curve to shift to the right?

A. An increase in the price of the good.
B. A decrease in consumer income for a normal good.
C. An increase in consumer income for a normal good.
D. An increase in the production costs of the good.

Question 27:

What is equilibrium in a supply and demand graph?

A. The point where the supply curve intersects the government regulation curve.
B. The point where the demand curve intersects the supply curve.
C. The point where the quantity demanded exceeds the quantity supplied.

D. The point where supply exceeds demand without any price change.

Question 28:
How does a technological advancement in production affect the supply curve?

A. It shifts the supply curve to the left.
B. It shifts the supply curve to the right.
C. It causes a movement up along the supply curve.
D. It has no effect on the supply curve.

Question 29:

If the price of substitute goods increases, what happens to the demand for the related good?

A. Demand for the related good decreases.
B. Demand for the related good increases.
C. Demand for the related good remains unchanged.
D. Supply for the related good increases.

Question 30:
What effect does a decrease in consumer preferences for a product have on its demand curve?

A. The demand curve shifts to the right.
B. The demand curve shifts to the left.
C. There is a movement up along the demand curve.
D. There is a movement down along the demand curve.

Question 31:

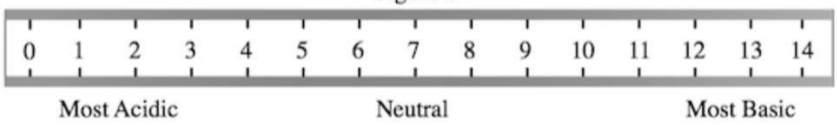
Which component is NOT part of the government's fiscal policy?

A) Taxation
B) Government spending
C) Monetary supply regulation
D) Budget deficits

SCIENCE SECTION

A student wished to study the acidity and basicity of various household ingredients and chemicals using her own, homemade pH indicator. A pH indicator is a substance that changes colors to indicate the acidity or basicity of a chemical solution. Acids can be defined as substances that donate hydrogen ions, or H^+, while bases are substances that accept H^+ ions. The strength of these acids and bases can be measured using the pH scale as shown in Figure 1.

Figure 1



Experiment 1:
The student placed a leaf of red cabbage in a blender with one liter of water and blended until the cabbage had been liquefied. She then strained the purple mixture and bottled it. The student then added one drop of her homemade cabbage pH indicator to a variety of household chemicals listed in Table 1. She recorded the known pH of these chemicals as well as the color the indicator turned when added to these chemicals.

Table 1

Household Chemical	Known pH	Color of Indicator
Toilet Bowl Cleaner	1.0	Red
Soda pop	2.5	Light Pink
Lemon Juice	3.0	Medium Pink
Vinegar	4.5	Dark Pink
Water	7.0	Purple-Blue
Baking Powder	8.0	Dark Blue
Baking Soda	10.0	Light Blue
Laundry Detergent	12.0	Green
Drain Cleaner	14.0	Yellow

Experiment 2:
The student wanted to see how baking soda would react in the presence of other household chemicals. She combined baking soda in water separately with each of the other chemicals used in Experiment 1. Some combinations would create bubbling while some other combinations wouldn't. She recorded the results in Table 2 below.

Table 2	
Household Chemical	Reaction?
Toilet Bowl Cleaner	Yes
Soda pop	Yes
Lemon Juice	Yes
Vinegar	Yes
Water	No
Baking Powder	No
Laundry Detergent	No
Drain Cleaner	No

1. If four solutions were made from household chemicals and the red cabbage indicator and resulted in the four following colors, which solution contained the most acidic chemical?

- Green
- Dark Pink
- Yellow
- Light Pink

2. Which of the following answer choices lists the four acids lemon juice, vinegar, toilet bowl cleaner, and soda pop in order from weakest to strongest?

- Vinegar, Lemon Juice, Soda Pop, Toilet Bowl Cleaner
- Vinegar, Soda Pop, Lemon Juice, Toilet Bowl Cleaner
- Toilet Bowl Cleaner, Vinegar, Soda Pop, Lemon Juice
- Toilet Bowl Cleaner, Soda Pop, Lemon Juice, Vinegar

3. The student will attempt to color in Figure 1 with the appropriate color the indicator will turn at various pHs. Which answer choice lists the colors in the correct order, from left, or low pHs, to right, or high pHs?

- Yellow, Green, Blue, Purple, Pink, Red
- Pink, Red, Yellow, Green, Blue, Purple
- Red, Pink, Purple, Blue, Green, Yellow
- Purple, Blue, Green, Yellow, Red, Pink

4. What can be inferred from Experiment 2?

- Baking soda only produces bubbles in the presence of an acid.
- None of the other answers is correct.
- Baking soda only produces bubbles in the presence of a base.
- Baking soda only produces bubbles in the presence of a chemical with a neutral pH.

5. A new indicator, called Methyl Red, is also used to test the household chemicals from Experiments 1 and 2. It is found that the indicator turns red in the presence of toilet bowl cleaner, soda pop, or lemon juice; it turns orange in the presence of vinegar; it turns yellow in the presence of the rest of the chemicals. Which of the following pH ranges most likely contain the pH value at which Methyl Red has its color transition, or pH at which the indicator will stop being red and change to yellow?

- 0 − 2
- 4 − 6
- 2 − 4
- 6 – 8

6. A universal indicator is a pH indicator that is a mix of several different indicators that have distinct color changes in various ranges of the pH scale in order to precisely tell the pH of any solution. While the red cabbage indictor is a good indicator for most pHs, it has one range that does not have drastic enough color changes to precisely tell the pH within this region. What pH range should a supplemental indicator have drastic colors changes in to improve the red cabbage indictor?

- 6 − 8
- 2 − 4
- 8 − 10
- 12 – 14

Scientist 1
In any population wherein some individuals are susceptible to a given disease, the prevalence of that disease is as much determined by the fraction of the population that is immune as by other environmental factors. If the majority of members in a community are immune, even those who are still susceptible are afforded some degree of protection by herd immunity. The spread of disease is limited by the creation of a large immune population, which benefits the entire community. This is why it is so important to immunize as many people as possible against dangerous contagious diseases, as it protects not only those who have been immunized, but those who have not.

Scientist 2
It is true that immunizing individuals provides some protection against contagious diseases, but the value of "herd immunity" has been overblown. The threshold at which a large enough proportion of the population has been immunized so that contagions cannot spread—the herd immunity threshold—depends on the virulence of the particular disease, as well as the effectiveness of the vaccine and the parameters of contagion. It is much easier to immunize a population against a disease that is only spread through blood-to-blood contact than against one that is airborne; thus, the usefulness of the herd immunity phenomenon is so limited that it is basically negligible. Instead of focusing on immunizing some percentage of the population in the hopes of reaching the herd immunity threshold, we should increase our efforts to limit the spread of various diseases through proper hygiene procedures and limiting contact with high-risk sources.

7. On which of the following statements would Scientist 1 and Scientist 2 likely agree?

- Herd immunity is more important than hygiene procedures to prevent the spread of contagions.
- It would be easy to immunize against a disease that is spread through blood-to-blood contact.

- In some situations, if a high enough percentage of the population were immunized against some contagious disease, the disease would be unable to spread.
- All diseases can be prevented through proper hygiene procedures and avoiding high-risk sources.
- The proportion of a population that must be immunized before the population can benefit from herd immunity is unrealistically high.

8. Scientist 1 would most likely disagree with which of the following?

- Environmental factors play a significant role in the prevalence of disease.
- Non-contagious diseases, such as those caused purely by genetics, would not be preventable through herd immunity.
- All diseases have a relatively low herd immunity threshold.
- The effectiveness of herd immunity depends on the proportion of the population that has been immunized.
- The herd immunity threshold will always be over half of the individuals in the population

9. Suppose that an extremely virulent bloodborne disease had spread rapidly through a population in which over 75% of the population had been immunized. What effects would this scenario have on each scientist's argument?

- This weakens Scientist 1's argument and supports Scientist 2's argument
- This weakens both scientists' arguments
- This supports Scientist 2's argument and does not detract from Scientist 1's argument.
- This weakens Scientist 2's argument and supports Scientist 1's argument
- This supports Scientist 1's argument and does not detract from Scientist 2's argument.

10. Which of the following might Scientist 1 bring to Scientist 2's attention in order to convince him to change position?

- Airborne diseases are harder to prevent through hygiene than diseases that are spread through blood-to-blood contact.
- It would be significantly easier and more cost-effective to implement an immunization program than teach everyone in a population proper hygiene procedure.
- Environmental factors are unlikely to play an important role in the spread of contagious disease.
- Although many diseases have an unattainably high herd immunity thresholds, several of the most common diseases have low thresholds.
- Herd immunity has been thoroughly proven in the scientific community.

The significant increase in atmospheric carbon dioxide since pre-industrial levels can be seen in the world’s oceans which absorb the CO_2 and in turn undergo changes in chemistry. The consequences of increased CO_2 include acidification of seawater and a decrease in carbonate ion (CO_3^{2-}) concentration.

Changes in seawater chemistry affect marine organisms. The early life stages of invertebrates, such as squid, may be particularly vulnerable to changes in carbon dioxide levels. Acting as both predator and prey, squid are a significant component of marine ecosystems. For example, fish and sea birds, such as tuna and albatross, are dependent on squid as a source of prey. Furthermore, the fishing industry is impacted by the health of squid populations. California fisheries produce the majority of market squid.

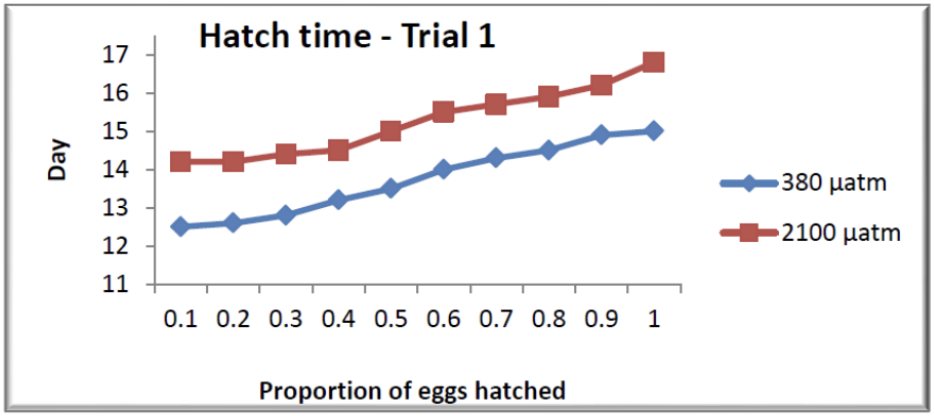
In order to determine how increased levels of carbon dioxide affect the development of squid, eggs were hatched in two different conditions: normal (380 µatm) and elevated (2100 µatm) levels of CO2. The time to hatch and the size of the larval mantle (the anatomical feature that includes the body wall and fins) were measured and recorded. Two trials were conducted for each carbon dioxide concentration.

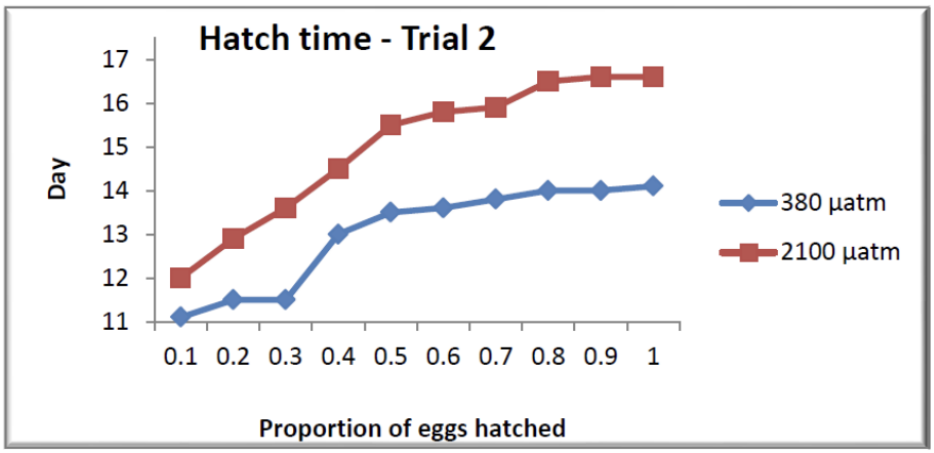
	CO_2 concentration	Temperature	pH	Salinity
Trial 1	380 µatm	20.35	7.89	30.518
Trial 2	380 µatm	20.26	7.84	30.600
Trial 1	2100 µatm	20.28	7.29	30.450
Trial 2	2100 µatm	20.33	7.31	30.724

Water chemistry conditions for each trial

	CO_2 concentration	Length (mm)
Trial 1	380 µatm	1.88
Trial 2	380 µatm	1.91
Trial 1	2100 µatm	1.67
Trial 2	2100 µatm	1.75

Average larval mantle lengths





11. Compared to the hatch time data in Trial 1, _____.

- The difference between normal and elevated CO2 hatch times was less pronounced in Trial 2
- There was a more significant difference between normal and elevated groups in Trial 2
- Trial 2 showed a more stable curve for both conditions
- Fewer eggs hatched in the elevated CO2 group of Trial 2

12. For water with a carbon dioxide concentration of 380 µatm, when would half of squid eggs be expected to be hatched?

- Between days 13 and 14
- Between days 12 and 13
- Between days 16 and 17
- Between days 11 and 12

13. On average, approximately how many days apart do 100% of the eggs hatch in the normal and elevated CO2 groups?

- 7
- less than 1
- 3

- 16

14. For which group was the rate of egg hatching the slowest?

- Trial1, normal CO_2
- Trial 2, elevated CO_2
- Trial 1, elevated CO_2
- Trial 2, normal CO_2

15. In this experiment, which of the following most likely affects squid-egg hatching?

- Temperature of water
- Amount of water
- Salinity of water
- pH of water

A group of scientists wanted to investigate weather patterns in four cities across the United States. They conducted a series of experiments to look for similarities and differences among the four cities. The scientists measured wind speed and direction, amount of precipitation, and percentage of cloud cover for one week. Further explanation can be found below.

Experiment 1
Scientists measured wind speed using an anemometer at fifteen different locations around each city. Measurements were taken at each location three times a day and then averaged to get a daily wind speed for each city. This was repeated every day for one week, and the results were compiled into Table 1.

Table 1	Average Wind Speed (kilometers per hour)						
City	Day 1	Day 2	Day3	Day 4	Day 5	Day 6	Day 7
Kalamazoo, MI	5.4	2.3	1.2	6.5	7.4	2.6	12.3
San Berdoo, CA	12.6	10.3	11.4	14.6	17.8	19.2	11.1
Madison, WI	6.6	1.3	3.4	4.2	1.7	8.7	2.1
Tallahassee, FL	7.8	5.6	4.1	6.6	6.9	4.4	8.8

Experiment 2
Scientists set up barometers at five locations in each city. At the end of each day, the precipitation levels in the five barometers were averaged to find the average daily precipitation, and the results are compiled in Table 2.

Table 2	Average Precipitation (centimeters)						
City	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Kalamazoo, MI	4.5	5.4	5.6	3.7	4.3	6.7	7.8
San Berdoo, CA	0.1	0.2	1.3	0	0	3.2	1.4
Madison, WI	2.9	3.5	4.2	6.2	7.4	5.8	4.1
Tallahassee, FL	14.4	12.3	11.6	10.9	13.2	16.7	12.2

Experiment 3

For the final experiment, scientists placed upward-facing cameras atop the ten tallest buildings in each city. The cameras took one picture per hour. The scientists then used computer software to stitch together the images from all the cameras. The resulting meta-image was then analyzed with another computer program to find the percent of the sky covered by clouds. The results can be found in Table 3.

Table 3	Cloud Cover Percentage						
City	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Kalamazoo, MI	27.00%	33.33%	14.56%	3.20%	5.76%	7.34%	5.51%
San Berdoo, CA	1.20%	3.40%	0.23%	5.40%	6.70%	4.30%	2.70%
Madison, WI	13.00%	15.60%	33.00%	12.50%	7.00%	0.50%	1.10%
Tallahassee, FL	77.00%	65.00%	35.00%	23.00%	99.90%	59.70%	80.00%

16. How many measurements did the scientists take per day in Experiment 1?

- 315
- 180
- 45
- 15
- 105

17. Which two cities had the most similar weather patterns?

- San Berdoo, Ca and Kalamazoo, MI
- Tallahassee, FL and Madison, WI
- Madison, WI and Kalamazoo, M
- Madison, WI and San Berdoo, CA
- San Berdoo, CA and Tallahassee, FL

18. Suppose the scientists wanted to use this data to say that Tallahassee is always wetter than Kalamazoo. Which of the following would be a valid criticism of this line of thought?

- These experiments were performed in the wet season, so the data is skewed.
- There is no valid criticism of this claim; it is a completely valid statement.
- The data presented by these experiments shows that Tallahassee is always drier than Kalamazoo.
- The method used to measure precipitation is fundamentally flawed.
- These experiments only examined these cities for 1 week, which isn't long enough to make such a sweeping claim.

19. In which experiment was the greatest number of measurements taken?

- Experiment 1
- Experiment 1 and 2
- Experiment 2 and 3
- Experiment 2

- Experiment 3

20. Which of the following is an assumption made by the scientists during the design of these experiments?

- The scientists assumed there would be rain in each city every day.
- The scientists assumed that there would be wind in each city every day.
- The scientists assumed that five barometers would be enough to get accurate data about precipitation.
- The scientists assumed that San Berdoo would receive less precipitation than Madison.
- The scientists assumed that cloud cover would not affect precipitation.

21. Which of the following is supported by the data in Experiment 3?

- San Berdoo is sunnier than Kalamazoo.
- Kalamazoo is cloudier than Tallahassee.
- Madison is sunnier than San Berdoo.
- Madison is windier than Kalamazoo.
- Tallahassee is wetter than Madison.

RLA SECTION Answer Sheet

Question 1:
Solution: [A]
Referencing an experienced doctor utilizes an appeal to authority, leveraging the doctor's expertise to strengthen the recommendation for the treatment.

Question 2:
Solution: [A]
The statement appeals to emotion by assuring the audience that they deserve the best, thereby creating an emotional incentive to choose the premium service.

Question 3:
Solution: [B]
Labeling someone as a "fool" constitutes an ad hominem attack, undermining the argument by attacking the character of those who ignore the product's benefits.

Question 4:
Solution: [A]
Appealing to tradition, the statement emphasizes the community's longstanding value of education to justify support for the new school funding initiative.

Question 5:
Solution: [B]
Envisioning a positive future engages the audience's emotions, making the argument more compelling by inspiring hopeful feelings about quality education.

Question 6:
Solution: [C]
Highlighting positive customer reviews employs the bandwagon effect, suggesting that many others trust the product, thereby encouraging new customers to follow suit.

Question 7:
Solution: [A]
This is an appeal to fear, urging immediate action to protect the planet's future, thereby using fear to motivate behavior change.

Question 8:
Solution: [C]
Choosing eco-friendly packaging appeals to logic by linking the action to contributing to a sustainable future, presenting a rational reason for the choice.

Question 9:
Solution: [C]
Mentioning thousands of satisfied customers uses the bandwagon technique, implying that many others have made the switch, encouraging others to do the same.

Question 10:
Solution: [A]

Presenting a false dilemma, the statement suggests that not investing equates to leaving money on the table, forcing a choice between two extreme options.

Question 11:
Solution: [A]
By highlighting the vulnerable members the charity helps, the statement appeals to emotion, fostering empathy and encouraging support.

Question 12:
Solution: [C]
Labeling the software as necessary to stay competitive uses the necessity technique, implying that without it, one cannot maintain competitiveness.

Question 13:
Solution: [C]
Encouraging others not to be the last taps into the bandwagon effect, suggesting that joining others is essential to not miss out on benefits.

Question 14:
Solution: [D]
Claiming the solution meets all needs uses an appeal to logic, asserting that the solution is effective through reasoned argument.

Question 15:
Solution: [C]
Inviting others to join the millions who have switched leverages the bandwagon technique, suggesting widespread adoption as a reason to follow suit.

Question 16:
Solution: [C]
Online education platforms have made education more accessible globally, effectively democratizing education by allowing enrollment without relocation.

Question 17:
Solution: [B]
The rise in electric vehicle adoption decreases oil demand, challenging the profitability of the oil industry, as outlined in the passage.

Question 18:
Solution: [C]
Advancements in AI have led to concerns about job displacement, which is a significant effect mentioned in the passage.

Question 19:
Solution: [C]
Climate change causes severe weather events that disrupt economies, as stated in the passage.

Question 20:
Solution: [B]

The global shift to renewable energy helps mitigate climate change by reducing greenhouse gas emissions.

Question 21:
Solution: [C]
The rise of e-commerce has led consumers to migrate to online shopping platforms, impacting traditional retail stores.

Question 22:
Solution: [C]
Excessive plastic use harms marine animals through ingestion and entanglement, as detailed in the passage.

Question 23:
Solution: [C]
An aging population increases the demand for medical and support services, challenging healthcare systems.

Question 24:
Solution: [B]
Recycling programs reduce environmental impact by decreasing waste sent to landfills, as mentioned in the passage.

Question 25:
Solution: [C]
Expanding public transportation improves mobility for residents and reduces reliance on cars, according to the passage.

Question 26:
Solution: [C]
Advancements in medical technology have led to improved patient outcomes and the ability to conduct remote consultations.

Question 27:
Solution: [C]
Globalization has increased economic interdependence and driven economic growth, as described in the passage.

Question 28:
Solution: [C]
The rise of social media has transformed communication and information sharing, which is the primary effect highlighted.

Question 29:
Solution: [C]
Implementing energy-efficient practices reduces energy consumption, leading to a decreased carbon footprint.

Question 30:
Solution: [B]

Exaggeration and irony are fundamental elements in satire, used to highlight and critique flaws or issues.

Question 31:
Solution: [A]
The statement uses sarcasm by implying the opposite of what is said, criticizing the idea of adding more taxes despite the need for roads.

Question 32:
Solution: [B]
Unlike pure comedy, satire's primary goal is to provoke thought and critique societal issues, using humor as a tool.

Question 33:
Solution: [B]
"Animal Farm" by George Orwell is a well-known satirical work critiquing political systems through allegory.

Question 34:
Solution: [C]
Irony in satire conveys the opposite of what is being stated, enhancing the critical message through contrast.

Question 35:
Solution: [B]
The statement sarcastically expresses dislike for waiting in endless lines at the DMV, turning a complaint into satire.

Question 36:
Solution: [A]
Parody imitates and exaggerates aspects of a work to critique or highlight its flaws, serving as an effective satirical method.

Question 37:
Solution: [C]
Satirical writing often employs an ironic and mocking tone to critique its subject matter.

Question 38:
Solution: [B]
Contemporary satire frequently targets social norms and political systems to highlight and critique their shortcomings.

Question 39:
Solution: [C]
Swift's "A Modest Proposal" satirically suggests eating children to highlight and criticize the neglect of the poor.

Question 40:
Solution: [B]
Mark Twain is renowned for his use of satire to critique political and social issues in his literary works.

Question 41:
Solution: [C]
Satire aims to provoke thought and inspire change by combining humor with criticism of societal issues.

Question 42:
Solution: [B]
Hyperbole, or exaggerated statements, is commonly used in satire to emphasize the absurdity of the subject being critiqued.

Question 43:
Solution: [B]
A "mock hero" parodies traditional heroic figures to highlight and critique their real-world flaws or societal issues.

Question 44:
Solution: [A]
Subtlety in satire makes the critique less overt, prompting readers to engage deeply and consider the underlying messages.

MATH SECTION Answer Sheet

1. **Correct Answer**: 1 − 5y

Explanation: With this problem the first thing to do is cancel out variables. The x² can all be divided by each other because they are present in each system. The equation will now look like this:

$$\frac{y - 5y2}{y}$$

Now we can see that the equation can all be divided by y, leaving the answer to be:

1 - 5y

2. **Correct Answer**: x is all real numbers

Explanation: Using our properties of exponents, we could rewrite f(x) as $\sqrt[5]{(x-2)^4}$ + 3

This means that when we input x, we first subtract 2, then take this to the fourth power, then take the fifth root, and then add three. We want to look at these steps individually and see whether there are any values that wouldn't work at each step. In other words, we want to know which x values we can put into our function at each step without encountering any problems.

The first step is to subtract 2 from x. The second step is to take that result and raise it to the fourth power. We can subtract two from any number, and we can take any number to the fourth power, which means that these steps don't put any restrictions on x.

Then we must take the fifth root of a value. The trick to this problem is recognizing that we can take the fifth root of any number, positive or negative, because the function $x^{\frac{1}{5}}$ is defined for any value of x; thus the fact that f(x) has a fifth root in it doesn't put any restrictions on x, because we can add three to any number; therefore, the domain for f(x) is all real values of x.

3. **Correct Answer**: 64π

Explanation: The standard form equation of a circle is (x - h)² + (y - h)² = r² where (h, k) is the center of the circle and r is equal to the radius.

Thus, since we have the circle's standard form equation already given to us, we can ignore h and k, since all we need is r².

The area of circle is equal to πr^2, which is equal to 64π.

4. **Correct Answer**: $\frac{19}{7}$

Explanation: k is the y-intercept and equals 3. n can be solved for by substituting 5 in the equation for y, which yields $\frac{2}{7}$

3 - $\frac{2}{7}$ = $\frac{21}{7}$ - $\frac{2}{7}$ = $\frac{19}{7}$

5. **Correct Answer**: y = $-\frac{2}{3}x$ + 4

Explanation: Find the slope of the given line: y = mx + b (slope intercept form)
y = $\frac{-2}{3}x$ + 2 therefore the slope is $\frac{-2}{3}$
Parallel lines have the same slope, so now we need to find the equation of a line with slope $\frac{-2}{3}$ and going through point (3,2) by substituting values into the point-slope formula.
2 = $\frac{-2}{3}(3)$ + b
So, b = 4
Thus, the new equation is y = $-\frac{2}{3}x$ + 4

6. **Correct Answer**: −2

Explanation: The equation of a line is y = mx + b where m is the slope.
Rearrange the equation to match this:
2x − 4y = 6
−4y = −2x + 6
4y = 2x − 6
y = $\frac{2}{4}x - \frac{6}{4}$
y = $\frac{1}{2}x - \frac{3}{2}$
m = $\frac{1}{2}$
For the perpendicular line, the slope is the negative reciprocal;
therefore m = $\frac{-2}{1}$ = −2

7. **Correct Answer**: −15

Explanation:
4x + 8 = 3x − 7
x + 8 = −7
x = −15

8. **Correct Answer**: $2x^3 + 4x^2 + 2x$

Explanation:
FOIL $(x + 1)^2$ and we get: $(x^2 + 2x + 1)$
Then multiply it by (2x) and get: $(2x^3 + 4x^2 + 2x)$

9. **Correct Answer**: x(x – 1) (x – 1)

Explanation: First we factor out an x then we can factor the (x – 1) (x – 1)

10. **Correct Answer**: None of the other answers

Explanation: If |x| < |z| we don't know anything for sure.
x could be less than z, such as x = 2 and z = 4.

x could also be greater than z, such as x = −2 and z = −4.
In both of these cases, |x| < |z|.
x = z cannot be true.
The other three choices COULD be true, but do not HAVE to be true.

11. **Correct Answer**: 3

Explanation: First, we must solve the equation for x by subtracting 2x from both sides:
2x − 2x + 1 = 3x − 2x − 2
1 = x − 2
Then we must add 2 to both sides:
1 + 2 = x – 2 + 2
3 = x

12. **Correct Answer**: 2 and 3

Explanation: To solve, we must set it equal to zero. The above expression is of the form $ax^2 + bx + c$, so we can use the quadratic formula:
$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$
to solve for the roots which are 2 and 3
We can check by plugging the roots into the expression and making sure that it equals zero.

13. **Correct Answer**: x = −3 or 11

Explanation:
|x − 4| +7 = 14
|x – 4| = 7
x − 4 = 7 or x − 4 = −7
x = 11 or −3

14. **Correct Answer**: 0

Explanation: Add the two equations to get −x + y = −4 or y = −4 + x
and then substitute y into one of the original equations to get
−3x + 4(−4x + x) = −14
Solving for x we get x = 2.
And we then substitute x = 2 into one of the original equations to get y = −2.
So the sum of x and y is 0.

15. **Correct Answer**: $\frac{-2}{3}$

Explanation:
$4^x \times 2^{x+2} = 1$
$2^{2x} \times 2^{x+2} = 1$
$2^{2x} \times 2^{x+2} = 2^0$
$2^{3x+2} = 2^0$
$3x + 2 = 0$
$3x = -2$

$x = \frac{-2}{3}$

16. **Correct Answer**: 50

Explanation:
Plug in 2 for q in the equation q(q – 7)²
That gives: 2(2 – 7)²
Then solve the computation inside the parenthesis: 2(–5)²
The answer should then be 50

17. **Correct Answer**: 8

Explanation:
20 can be factored as:
I) 1 × 20
II) 2 × 10
III) 4 × 5
The positive difference of the factors can be any of:
20 - 1 = 19
10 - 2 = 8
5 - 4 = 1
Of the four choices, only 8 is possible.

18. **Correct Answer**: $4x^{12}$

Explanation: 2² * (x³) (x³) (x³) (x³) = $4x^{12}$

19. **Correct Answer**: x > 7

Explanation:
Square both sides of the equation: x – 3 = 2²
Then Solve for x: x = 7
Therefore, x > 7

20. **Correct Answer**: 47

Explanation: The function x ■ y is defined by (x^3- y)² - x. This means that for whatever value is in the space of the x before the symbol ■, in our case 2, is inserted into any x in the defined function: (2³ - y)² - 2

For the value that follows ■, the y value of 1 in our case, is inserted into any y variable in the defined function. (2³ - 1)² - 2
Then simplify:
(8 - 1) ² - 2
7² - 2
49 - 2
47 (is our correct answer after all the simplification.)

SOCIAL STUDIES Answer Sheet

Question 1:
Solution: [C]
The First Amendment protects several fundamental rights, including freedom of speech, religion, and the press.

Question 2:
Solution: [C]
Checks and balances is the system that allows each branch of government to limit the powers of the others, preventing any one branch from becoming too powerful.

Question 3:
Solution: [B]
The Fourth Amendment protects against unreasonable searches and seizures.

Question 4:
Solution: [B]
To amend the Constitution, it must be approved by three-fourths of the state legislatures.

Question 5:
Solution: [B]
The Sixth Amendment ensures the rights to a speedy and public trial, an impartial jury, and legal counsel.

Question 6:
Solution: [B]
The Bill of Rights consists of the first ten amendments to the Constitution.

Question 7:
Solution: [A]
The 13th Amendment abolished slavery in the United States.

Question 8:
Solution: [C]
The Judicial Branch interprets laws and ensures they are applied fairly.

Question 9:
Solution: [B]
Marbury v. Madison established the principle of judicial review, allowing the Supreme Court to declare laws unconstitutional.

Question 10:
Solution: [B]
Rosa Parks' refusal to give up her seat on a Montgomery bus in 1955 sparked the Montgomery Bus Boycott, a pivotal event in the Civil Rights Movement.

Question 11:
Solution: [D]

The Southern Christian Leadership Conference (SCLC) was founded by Martin Luther King Jr. to oversee nonviolent protests and coordinate civil rights activities.

Question 12:
Solution: [B]
The Brown v. Board of Education decision declared state laws establishing separate public schools for black and white students unconstitutional, overturning the "separate but equal" doctrine.

Question 13:
Solution: [B]
The Civil Rights Act of 1964 outlawed discrimination based on race, color, religion, sex, or national origin, marking a significant achievement in civil rights legislation.

Question 14:
Solution: [B]
Rosa Parks was the African American woman whose refusal to give up her bus seat became a pivotal moment in igniting the Civil Rights Movement.

Question 15:
Solution: [B]
The Student Nonviolent Coordinating Committee (SNCC) aimed to organize nonviolent protests and empower African American youth to participate actively in the Civil Rights Movement.

Question 16:
Solution: [B]
The March on Washington for Jobs and Freedom in 1963 was a significant event advocating for civil and economic rights for African Americans, where MLK delivered his famous speech.

Question 17:
Solution: [A]
Thurgood Marshall was the first African American Supreme Court Justice, appointed in 1967, after a distinguished career as a civil rights lawyer.

Question 18:
Solution: [C]
Nonviolent civil disobedience, advocated by leaders like Martin Luther King Jr., emphasized peaceful resistance to achieve civil rights goals without resorting to violence.

Question 19:
Solution: [B]
The 19th Amendment, ratified in 1920, granted women the right to vote in the United States.

Question 20:
Solution: [D]
Marbury v. Madison (1803) established the principle of judicial review, allowing the Supreme Court to declare laws unconstitutional.

Question 21:
Solution: [D]
Interest groups use various methods to influence legislation, including lobbying, grassroots organizing, and political action committees (PACs).

Question 22:
Solution: [A]
Federalism is a system where power is divided between a central authority and constituent political units, such as states.

Question 23:
Solution: [A]
The U.S. Congress is bicameral, consisting of two chambers: the House of Representatives and the Senate.

Question 24:
Solution: [B]
The Senate has the power to approve treaties negotiated by the President, functioning as a check on the executive branch.

Question 25:
Solution: [B]
When there is a surplus in the market, the price of the good typically decreases. Surpluses occur when the quantity supplied exceeds the quantity demanded, leading sellers to lower prices to attract buyers.

Question 26:
Solution: [C]
An increase in consumer income for a normal good cause the demand curve to shift to the right. Higher income increases consumers' ability to purchase more of the good, increasing overall demand.

Question 27:
Solution: [B]
Equilibrium in a supply and demand graph is the point where the demand curve intersects the supply curve. At this point, the quantity demanded equals the quantity supplied, and the market is in balance.

Question 28:
Solution: [B]
A technological advancement in production shifts the supply curve to the right. Improved technology makes production more efficient, allowing producers to supply more goods at the same price.

Question 29:
Solution: [B]

If the price of substitute goods increases, the demand for the related good increases. Consumers switch to the related good when substitutes become more expensive, boosting its demand.

Question 30:
Solution: [B]
A decrease in consumer preferences for a product causes the demand curve to shift to the left. Lower preference means fewer consumers are willing to buy the product at any given price, reducing overall demand.

Question 31:
Solution: [C]
Fiscal policy involves government decisions on taxation, government spending, and budget deficits or surpluses. Monetary supply regulation is controlled by the central bank and is part of monetary policy, not fiscal policy.

SCIENCE SECTION Answer Sheet

1. **Correct Answer:** Light Pink

Explanation: Figure 1 shows that the lowest pH values correlate with highest acidity. Consult Table 1 to see the corresponding pH values for the four indicator colors mentioned in the question. Light pink, which indicates a pH of roughly 2.5, is the color of the most acidic solution, as 2.5 is the lowest number correlated with a color mentioned in the question.

2. **Correct Answer:** Vinegar, Lemon Juice, Soda Pop, Toilet Bowl Cleaner

Explanation: Figure 1 shows that the strongest acids have the lowest pH values. So, we need to list these acids from the highest pH to the lowest pH. Note that Table 1 lists the chemicals in order of increasing pH. That means the correct order of increasing acidity will list the acids in order from the bottom up on Table 1, with vinegar first, as it is the weakest acid, and toilet bowl cleaner last, as it is the strongest acid.

3. **Correct Answer:** Red, Pink, Purple, Blue, Green, Yellow

Explanation: Note that Table 1 lists the chemicals from lowest to highest pH. Thus, we must simply list the colors that correspond with these increasing pH values in the order down the list on Table 1, starting with red, and ending with yellow.

4. **Correct Answer:** Baking soda only produces bubbles in the presence of an acid.

Explanation: Baking soda reacts, or produces bubbles, with lemon juice, vinegar, toilet bowl cleaner, and soda pop only. By cross-referencing Table 1, we see that these substances have a pH of less than 7, which is the definition of an acid as Figure 1 shows. Thus, we know that baking soda only reacts with acids.

5. **Correct Answer:** 4 − 6

Explanation: It appears that the color transition happens at the pH range around the pH of vinegar, given that the indicator in vinegar is orange, and orange is produced by a combination of red and yellow. As the pH of vinegar, according to Table 1, is 4.5, the range of 4 to 6 is the correct answer as it contains the value.

6. **Correct Answer:** 2 − 4

Explanation: Table 1 shows that the indicator does not change much from the pH of vinegar, or 4.5, to the pH of soda pop, 2.5, since it is some shade of pink at all pH values in this range. Thus, the red cabbage indicator could be improved by adding an indicator that changes color drastically in this region. The answer choice that lists the range from 2 to 4 is the closest answer choice.

7. **Correct Answer:** In some situations, if a high enough percentage of the population were immunized against some contagious disease, the disease would be unable to spread.

Explanation: Scientist 1 and Scientist 2 disagree about whether herd immunity is the most reliable form of contagious disease prevention, but both scientists admit that herd immunity has some merits. Scientist 1 argues that herd immunity is a realistic means of controlling infectious diseases. Scientist 2 argues that the herd immunity threshold is too high to make herd immunity practical. Both scientists agree that if the herd immunity threshold is reached, then herd immunity can limit the spread of disease.
Neither scientist argues that herd immunity is more important than hygiene procedures. Only Scientist 2 argues that the herd immunity threshold is unrealistically high and that diseases should be prevented by more attention to environmental control factors. Scientist 2 also argues that diseases transferred by blood would be easier to counter with immunization.

8. **Correct Answer:** All diseases have a relatively low herd immunity threshold.

Explanation: Scientist 1 asserts that herd immunity can be an effective tool in controlling the spread of contagious diseases, but does not claim that all diseases have a low herd immunity threshold. Scientist 1 argues for herd immunity as a means of combatting contagious diseases. Non-contagious diseases, such as genetic disorders, will not be affected by herd immunity. Also, specific attributes of a certain disease may increase its virulence, leading to a high herd immunity threshold. Scientist 1 does not argue that all diseases will have low thresholds, and would likely disagree with this statement.
The other answer options are all implied by Scientist I's argument.
He states that proportional immunity is as important "as other environmental factors" in determining overall prevalence, which suggests that environmental factors do play a significant role. He also states that "a majority" of a population would need to be immunized in order to achieve herd immunity; thus, any herd immunity threshold would be over half of the population.

9. **Correct Answer:** This supports Scientist 2's argument and does not detract from Scientist 1's argument.

Explanation: Neither Scientist 1, nor Scientist 2 claimed that an extremely virulent disease would be absolutely stymied by herd immunity.
Scientist 2 claims that herd immunity thresholds for certain diseases might be so high that relying on herd immunity would not be effective. The case described supports that argument.
Scientist 1 never claimed that herd immunity would be absolutely effective against all diseases, nor did he mention a specific threshold at which a population would be safe from the spread of contagions. This case neither supports, nor undermines Scientist I's argument.

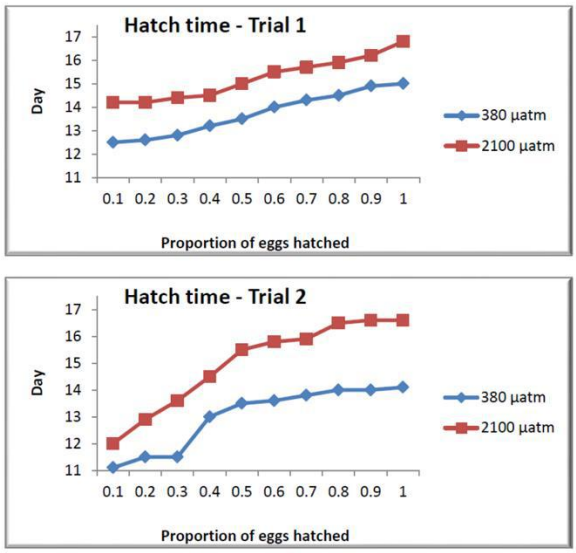
10. **Correct Answer:** Although many diseases have an unattainably high herd immunity thresholds, several of the most common diseases have low thresholds.

Explanation: In order for Scientist 1 to convince Scientist 2 to change his position, Scientist 1 needs to show some reason to believe that implementing an immunization strategy would effectively prevent the spread of disease. Scientist 2 is skeptical that prevention would be possible because many diseases have high herd immunity thresholds. If Scientist 1 could show that the most common diseases have low herd immunity thresholds, then Scientist 2 might be convinced that immunization could be effective at preventing the spread of disease.

The other answer choices either do not support Scientist 1's position or actually undermine it.

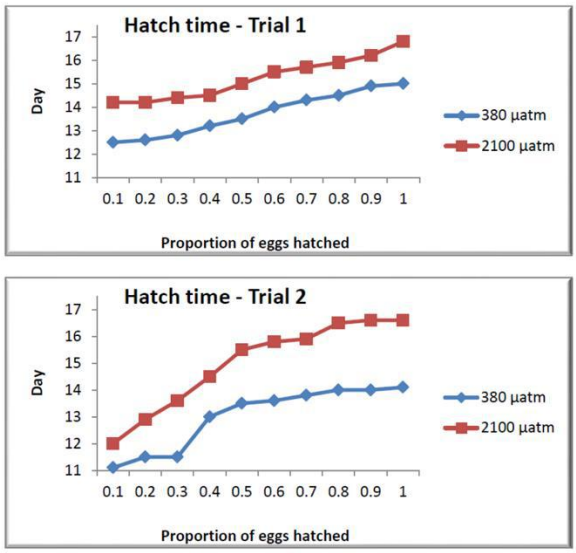
11. **Correct Answer:** There was a more significant difference between normal and elevated groups in Trial 2

Explanation: Comparing the difference between the curves of normal and elevated carbon dioxide egg hatching data, we see that the lines diverge more so in Trial 2:



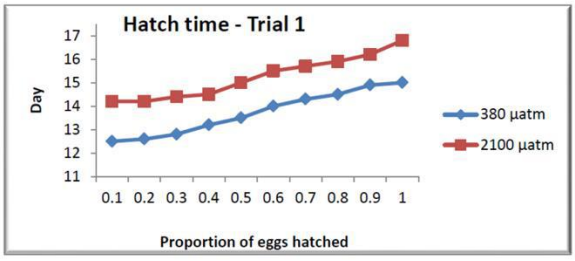
12. **Correct Answer:** Between days 13 and 14

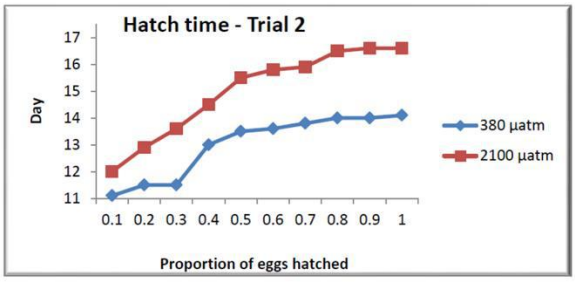
Explanation: The question asks us to determine when half of the squid eggs would be hatched in the 380 yatm group (blue line). For this question, you can ignore the red lines. On the x-axis, find 0.5 (this corresponds to half of the eggs). Then, find the corresponding number of days on the y-axis. We find that 0.5 falls between days 13 and 14 for Trials 1 and 2.



13. **Correct Answer:** 3

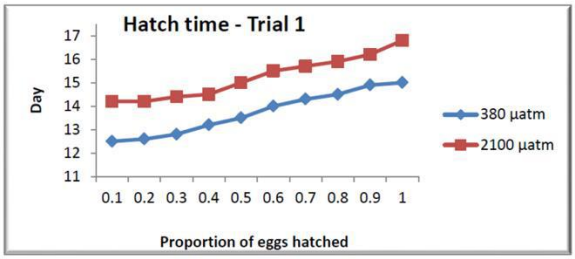
Explanation: We are asked to find the number of days between the hatching of all of the eggs in the normal (blue line) and elevated (red line) carbon dioxide groups. To do this, locate the endpoints of the lines (at x = 1) in Trial 1. All of the eggs in the normal group hatch just after day 14; those in the elevated group hatch at about day 17 (a difference of about three days). Repeat this for Trial 2; again, we find a difference of about three days.

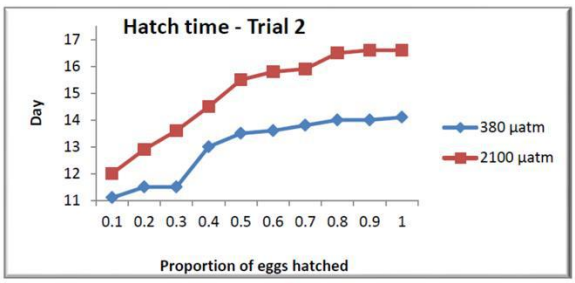




14. **Correct Answer:** Trial 2, elevated CO_2

Explanation: Here we are asked to find which of the lines below represents the slowest rate of egg hatching. Since 100% of the eggs eventually hatched for each group, the question becomes for which group did hatching span the most number of days. In the elevated group (red line) in Trial 2, egg hatching began at day 12 and lasted until about day 17. Since this represents the longest period of egg hatching activity among the groups, the rate of hatching is the slowest in the Trial 2, elevated group.





15. **Correct Answer:** pH of water

Explanation: The data shows that carbon dioxide concentration affects egg hatching. The task is to identify which variable correlates with carbon dioxide concentration. Looking at the water chemistry table, it is clear that pH is the only measurement that varies between COz concentrations. (Salinity and temperature are similar, and the amount of water is not mentioned.)

16. **Correct Answer:** 180

Explanation: The passage states that in Experiment 1, the scientists took measurements three times a day from fifteen locations in each of the four cities. To find the total number of measurements per day, simply multiply those numbers together to get the following:
15 * 3 * 4 = 45 * 4 = 180 Samples per Day

17. **Correct Answer:** Madison, WI and Kalamazoo, MI

Explanation: To answer this question, analyze the charts in all three experiments. San Berdoo is significantly drier, windier and sunnier than any of the other cities. Tallahassee is significantly wetter and cloudier than any of the others. This leaves Madison and Kalamazoo. Although they are not exactly the same, they are very close in all measurements.

18. **Correct Answer:** These experiments only examined these cities for 1 week, which isn't long enough to make such a sweeping claim.

Explanation: When making statements about a place's climate, which involves long-term weather patterns, it is necessary to have data from over the course of a long time. In this case, we only have one week's worth of data. This is not nearly enough to make a bold extrapolation about the two cities' climates. So, "These experiments only examined these cities for one week, which isn't long enough to make such a sweeping claim" is our best choice.
The data never shows Kalamazoo being wetter than Tallahassee, nor does it even mention a "wet season." Measuring precipitation via a barometer is perfectly valid, and as explained above, there is a valid criticism to be made here.

19. **Correct Answer:** Experiment 3

Explanation: To solve this question, read the description of each experiment carefully.
In Experiment 1, measurements were taken at fifteen locations three times per day in all four cities. This results in 315 measurements each day.
In Experiment 2, measurements were taken at five barometers in each of four cities, resulting in 20 measurements per day
In Experiment 3, measurements were taken at ten locations, twenty-four times a day, in four cities. This results in 960 measurements per day, making Experiment 3 easily the winner.

20. **Correct Answer:** The scientists assumed that five barometers would be enough to get accurate data about precipitation.

Explanation: The scientists only planned on measuring precipitation from five barometers per city. This means they must have assumed that five barometers would be enough to get an accurate impression of daily precipitation in each city.
They did not assume there would be precipitation or wind in each city. In fact, San Berdoo had no precipitation on multiple days.

21. **Correct Answer:** San Berdoo is sunnier than Kalamazoo.

Explanation: After reading the question carefully, we see that we need to look at Experiment 3. Eliminate any options that don't deal with cloud cover.
Then, we can see that in order of increasing cloud cover, we have:
San Berdoo, Madison/Kalamazoo, and finally, Tallahassee.
Thus, the only statement we can say is supported is that San Berdoo is sunnier than Kalamazoo.