

PRACTICE EXAM 16: ELEVATOR INDUSTRY APTITUDE TEST SIMULATION (100 QUESTIONS)

This standalone practice exam contains 100 multiple-choice questions covering arithmetic computation, reading comprehension, mechanical comprehension, and general tool knowledge. Work without a calculator to simulate typical conditions. Select the single best answer for each question. A score of 70% or higher meets NEIEP's published minimum passing standard; confirm your local testing instructions for exact timing.

1. Compute by hand: a crew installs 18 brackets in 3 hours at a constant rate. How many brackets can it install in 7 hours?

- A. 36
- B. 42
- C. 40
- D. 48

2. Compute by hand: change 7 feet 9 inches to inches.

- A. 84
- B. 88
- C. 97
- D. 93

3. Compute by hand: change 2.5 hours to minutes.

- A. 150
- B. 120
- C. 125
- D. 180

4. Compute by hand: a rectangular platform is 12 feet long and 7 feet wide. What is its area?

- A. 38 square feet
- B. 76 square feet
- C. 84 square feet
- D. 96 square feet

5. Compute by hand: calculate the perimeter of a rectangle measuring 9 feet by 5 feet?

- A. 14 feet
- B. 28 feet
- C. 36 feet
- D. 45 feet

6. Compute by hand: a box has dimensions 4 feet by 3 feet by 2 feet. What is its volume?

- A. 9 cubic feet
- B. 18 cubic feet
- C. 24 cubic feet
- D. 36 cubic feet

7. Compute by hand: round 47.586 to the nearest tenth.

- A. 47.5
- B. 47.58
- C. 48.0
- D. 47.6

8. Compute by hand: calculate the average of 12, 18, 21, and 29?

- A. 20
- B. 18
- C. 19
- D. 21

9. Compute by hand: if 6 identical cables cost \$114, what is the cost per cable?

- A. \$17
- B. \$18
- C. \$19
- D. \$21

10. Compute by hand: a tank is $\frac{3}{5}$ full. After 24 gallons are added, it is $\frac{9}{10}$ full. What is the tank capacity?

- A. 60 gallons
- B. 72 gallons
- C. 90 gallons
- D. 80 gallons

11. Compute by hand: a measurement of 15.75 inches is reduced by 2.375 inches. What remains?

- A. 13.375 inches
- B. 12.375 inches
- C. 13.125 inches
- D. 13.425 inches

12. Compute by hand: during a timed task, a worker completes $\frac{3}{8}$ of a task Monday and $\frac{1}{4}$ Wednesday. What fraction remains?

- A. $\frac{1}{4}$
- B. $\frac{3}{8}$
- C. $\frac{1}{2}$
- D. $\frac{5}{8}$

13. Compute by hand: if $2x/5 = 14$, what is x ?

- A. 35
- B. 28
- C. 30
- D. 40

14. Compute by hand: calculate $684 + 297$?

- A. 971
- B. 991
- C. 981
- D. 881

15. Compute by hand: calculate $1,205 - 678$?

- A. 517
- B. 527
- C. 537
- D. 627

16. Compute by hand: calculate 36 multiplied by 24?

- A. 744
- B. 824
- C. 884

D. 864

17. Compute by hand: calculate 1,008 divided by 24?

A. 40

B. 44

C. 48

D. 42

18. Compute by hand: calculate $\frac{3}{4} + \frac{5}{8}$?

A. $1 \frac{1}{8}$

B. $1 \frac{5}{8}$

C. $1 \frac{3}{8}$

D. $\frac{7}{8}$

19. Compute by hand: calculate $\frac{7}{9} - \frac{2}{3}$?

A. $\frac{2}{9}$

B. $\frac{1}{9}$

C. $\frac{3}{9}$

D. $\frac{5}{9}$

20. Compute by hand: calculate $2 \frac{1}{2}$ multiplied by $1 \frac{1}{5}$?

A. 3

B. 2.5

C. 3.5

D. 4

21. Compute by hand: calculate $4\frac{1}{2}$ divided by $\frac{3}{4}$?

- A. 6
- B. 5
- C. 7
- D. 8

22. Compute by hand: convert 0.375 as a fraction in lowest terms.

- A. $\frac{3}{10}$
- B. $\frac{3}{8}$
- C. $\frac{5}{8}$
- D. $\frac{375}{10}$

23. Compute by hand: convert $\frac{7}{20}$ as a decimal.

- A. 0.28
- B. 0.4
- C. 0.35
- D. 0.7

24. Compute by hand: calculate 18% of 250?

- A. 40
- B. 48
- C. 55
- D. 45

25. Compute by hand: a length increases from 80 inches to 92 inches. What is the percent increase?

- A. 12%
- B. 15%
- C. 18%
- D. 20%

26. Compute by hand: a 5:8 ratio represents bolts to washers. If there are 40 washers, how many bolts are needed?

- A. 20
- B. 30
- C. 25
- D. 35

27. Compute by hand: determine x : $4x + 7 = 39$.

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

28. Compute by hand: determine y : $3(y - 2) = 21$.

- A. 5
- B. 7
- C. 11
- D. 9

29. Compute by hand: evaluate $6 + 3(8 - 5)^2$.

- A. 15
- B. 27

- C. 81
- D. 33

30. Compute by hand: which value is greatest?

- A. 0.78
- B. $\frac{5}{6}$
- C. $\frac{4}{5}$
- D. 81%

31. Study this jobsite passage: The portable work-light circuit began tripping after an additional cord was connected. Rather than repeatedly resetting the breaker, Caleb disconnected the added load and inspected the cord. He found damaged insulation near the plug, tagged the cord out of service, and reported _____ it _____ for _____ replacement.

What is the passage's main idea?

- A. A breaker was reset until it stopped tripping
- B. Temporary lighting never needs inspection
- C. A recurring trip led to removal of a damaged cord
- D. A new cord damaged the lighting circuit

32. Study this jobsite passage: The portable work-light circuit began tripping after an additional cord was connected. Rather than repeatedly resetting the breaker, Caleb disconnected the added load and inspected the cord. He found damaged insulation near the plug, tagged the cord out of service, and reported _____ it _____ for _____ replacement.

What did Caleb do first after the repeated trips?

- A. He disconnected the added load
- B. He replaced the breaker
- C. He taped over the damage
- D. He increased the circuit rating

33. Study this jobsite passage: The portable work-light circuit began tripping after an additional cord was connected. Rather than repeatedly resetting the breaker, Caleb disconnected the added load and inspected the cord. He found damaged insulation near the plug, tagged the cord out of service, and reported _____ it _____ for _____ replacement.

Where was the damage found?

- A. Inside a light fixture
- B. At the breaker handle
- C. Under the lighting stand
- D. Near the cord plug

34. Study this jobsite passage: The portable work-light circuit began tripping after an additional cord was connected. Rather than repeatedly resetting the breaker, Caleb disconnected the added load and inspected the cord. He found damaged insulation near the plug, tagged the cord out of service, and reported _____ it _____ for _____ replacement.

Why was the cord tagged?

- A. To prevent its continued use
- B. To show it had passed inspection
- C. To identify it as newly purchased
- D. To authorize a larger electrical load

35. Study this jobsite passage: The portable work-light circuit began tripping after an additional cord was connected. Rather than repeatedly resetting the breaker, Caleb disconnected the added load and inspected the cord. He found damaged insulation near the plug, tagged the cord out of service, and reported _____ it _____ for _____ replacement.

What can be inferred from Caleb's actions?

- A. Breakers should always be bypassed
- B. Damaged insulation is harmless

- C. Repeated breaker trips should be investigated
- D. Added loads never affect circuits

36. Study this jobsite passage: A service notice originally stated that the service entrance would close Wednesday. After the required component was delayed, the coordinator revised the notice to Friday, posted the update at both entrances, and emailed tenants. The service crew then confirmed delivery before mobilizing.

Why was the closure date changed?

- A. Tenants requested an earlier closure
- B. The replacement part was delayed
- C. The repair team had already finished
- D. The east entrance was permanently opened

37. Study this jobsite passage: A service notice originally stated that the service entrance would close Wednesday. After the required component was delayed, the coordinator revised the notice to Friday, posted the update at both entrances, and emailed tenants. The service crew then confirmed delivery before mobilizing.

How were tenants informed?

- A. By posted notices and email
- B. Only through a verbal message
- C. By the delivery driver alone
- D. Through an unposted work order

38. Study this jobsite passage: A service notice originally stated that the service entrance would close Wednesday. After the required component was delayed, the coordinator revised the notice to Friday, posted the update at both entrances, and emailed tenants. The service crew then confirmed delivery before mobilizing.

What happened after the notices were updated?

- A. The part delay was ignored
- B. Delivery was confirmed before mobilization
- C. Tuesday's closure proceeded unchanged
- D. The repair team canceled all work

39. Study this jobsite passage: A service notice originally stated that the service entrance would close Wednesday. After the required component was delayed, the coordinator revised the notice to Friday, posted the update at both entrances, and emailed tenants. The service crew then confirmed delivery before mobilizing.

The word 'mobilizing' most nearly means:

- A. Writing a new tenant lease
- B. Manufacturing the replacement part
- C. Preparing and moving resources to the job
- D. Closing both entrances permanently

40. Study this jobsite passage: A service notice originally stated that the service entrance would close Wednesday. After the required component was delayed, the coordinator revised the notice to Friday, posted the update at both entrances, and emailed tenants. The service crew then confirmed delivery before mobilizing.

Which principle does the passage illustrate?

- A. Begin work before required parts arrive
- B. Limit updates to the repair crew
- C. Keep obsolete notices posted
- D. Confirm prerequisites and communicate schedule changes

41. Study this jobsite passage: Before beginning maintenance, Keisha reviewed the service ticket and discovered that the listed floor location did not match the unit identifier. She contacted the lead mechanic, who corrected the order before the crew isolated power. The brief delay prevented work on the wrong unit.

What is the passage's main idea?

- A. Maintenance always requires two supervisors
- B. Power isolation caused the work-order error
- C. The crew completed work on the wrong unit
- D. Checking documents prevented a serious mistake

42. Study this jobsite passage: Before beginning maintenance, Keisha reviewed the service ticket and discovered that the listed floor location did not match the unit identifier. She contacted the lead mechanic, who corrected the order before the crew isolated power. The brief delay prevented work on the _____ wrong _____ unit.

Why did Keisha contact the lead mechanic?

- A. The crew had already finished the repair
- B. The landing and equipment number conflicted
- C. The supervisor had forgotten to isolate power
- D. The work order lacked every maintenance step

43. Study this jobsite passage: Before beginning maintenance, Keisha reviewed the service ticket and discovered that the listed floor location did not match the unit identifier. She contacted the lead mechanic, who corrected the order before the crew isolated power. The brief delay prevented work on the _____ wrong _____ unit.

Which event occurred last?

- A. The crew isolated power
- B. Lena reviewed the work order
- C. The supervisor corrected the order
- D. Lena found the identification mismatch

44. Study this jobsite passage: Before beginning maintenance, Keisha reviewed the service ticket and discovered that the listed floor location did not match the unit identifier. She contacted the lead mechanic, who corrected the order before the crew isolated power. The brief delay prevented work on the _____ wrong _____ unit.

The word 'brief' most nearly means:

- A. Detailed in content
- B. Severe in effect
- C. Short in duration
- D. Uncertain in purpose

45. Study this jobsite passage: Before beginning maintenance, Keisha reviewed the service ticket and discovered that the listed floor location did not match the unit identifier. She contacted the lead mechanic, who corrected the order before the crew isolated power. The brief delay prevented work on the _____ wrong _____ unit.

What can reasonably be inferred?

- A. Work orders should never be corrected
- B. Power isolation is unnecessary after review
- C. Equipment identification should be confirmed before work
- D. Every listed landing has duplicate equipment

46. Study this jobsite passage: A delivery arrived during strong wind. Andre moved the crates under cover, compared the delivery manifest with the destination tags, and found one package marked for another site. He separated that package and documented the discrepancy instead of opening it.

What is the main purpose of the passage?

- A. To show careful handling of a delivery discrepancy
- B. To explain how rain damages every carton
- C. To argue that packing slips are unnecessary
- D. To describe opening a package at the wrong site

47. Study this jobsite passage: A delivery arrived during strong wind. Andre moved the crates under cover, compared the delivery manifest with the destination tags, and found one package marked for

another site. He separated that package and documented the discrepancy instead of opening it.

Why did Andre separate one package?

- A. It had already been opened
- B. It was marked for another location
- C. Its label was unreadable from rain
- D. It contained no packing slip

48. Study this jobsite passage: A delivery arrived during strong wind. Andre moved the crates under cover, compared the delivery manifest with the destination tags, and found one package marked for another site. He separated that package and documented the discrepancy instead of opening it.

What did Andre do before finding the discrepancy?

- A. He opened every package
- B. He returned the entire delivery
- C. He called the other site
- D. He compared the slip with the labels

49. Study this jobsite passage: A delivery arrived during strong wind. Andre moved the crates under cover, compared the delivery manifest with the destination tags, and found one package marked for another site. He separated that package and documented the discrepancy instead of opening it.

The word 'discrepancy' most nearly means:

- A. A routine delivery schedule
- B. A difference that should be resolved
- C. A protective covering
- D. A signed purchase approval

50. Study this jobsite passage: A delivery arrived during strong wind. Andre moved the crates under cover, compared the delivery manifest with the destination tags, and found one package marked for

another site. He separated that package and documented the discrepancy instead of opening it.

Which statement is supported?

- A. Omar preserved the package while reporting the issue
- B. Omar ignored the incorrect label
- C. The entire shipment belonged elsewhere
- D. Rain prevented any inspection

51. Study this jobsite passage: The routine inspection found a light rubbing sound only when the car traveled upward. The mechanic first checked for loose debris, then observed the roller-guide area during a controlled run. A worn insert was replaced, and a second run confirmed that the sound was gone.

What is the passage mainly about?

- A. A schedule for replacing every guide shoe
- B. A passenger complaint about travel speed
- C. A decision to remove loose debris
- D. A systematic diagnosis of an unusual sound

52. Study this jobsite passage: The routine inspection found a light rubbing sound only when the car traveled upward. The mechanic first checked for loose debris, then observed the roller-guide area during a controlled run. A worn insert was replaced, and a second run confirmed that the sound was gone.

When was the sound initially heard?

- A. Only while the car traveled downward
- B. While the car remained at a landing
- C. While the car traveled upward
- D. After the worn insert was replaced

53. Study this jobsite passage: The routine inspection found a light rubbing sound only when the car traveled upward. The mechanic first checked for loose debris, then observed the roller-guide area during

a controlled run. A worn insert was replaced, and a second run confirmed that the sound was gone.

What was checked first?

- A. The controller software
- B. The landing doors
- C. The replacement insert
- D. Possible loose debris

54. Study this jobsite passage: The routine inspection found a light rubbing sound only when the car traveled upward. The mechanic first checked for loose debris, then observed the roller-guide area during a controlled run. A worn insert was replaced, and a second run confirmed that the sound was gone.

Why was a second run performed?

- A. To confirm the correction worked
- B. To create a louder scraping sound
- C. To test an unrelated landing signal
- D. To postpone replacement of the insert

55. Study this jobsite passage: The routine inspection found a light rubbing sound only when the car traveled upward. The mechanic first checked for loose debris, then observed the roller-guide area during a controlled run. A worn insert was replaced, and a second run confirmed that the sound was gone.

The word 'faint' most nearly means:

- A. Regular and predictable
- B. Sharp and dangerous
- C. Slight and difficult to hear
- D. Continuous and increasing

56. Study this jobsite passage: A crew planned to move materials through a shared loading corridor at midafternoon. Because another contractor scheduled painting there, the foreperson shifted the move to

the start of the shift and notified building staff. The change kept the loading corridor clear and prevented dust from settling on fresh paint.

What problem did the foreperson anticipate?

- A. The building would close in early morning
- B. The material move would interfere with painting
- C. The crew lacked materials to move
- D. The hallway could not support foot traffic

57. Study this jobsite passage: A crew planned to move materials through a shared loading corridor at midafternoon. Because another contractor scheduled painting there, the foreperson shifted the move to the start of the shift and notified building staff. The change kept the loading corridor clear and prevented dust from settling on fresh paint.

What action solved the scheduling conflict?

- A. Canceling the painting permanently
- B. Closing the hallway for a week
- C. Moving the materials earlier
- D. Sending materials to another building

58. Study this jobsite passage: A crew planned to move materials through a shared loading corridor at midafternoon. Because another contractor scheduled painting there, the foreperson shifted the move to the start of the shift and notified building staff. The change kept the loading corridor clear and prevented dust from settling on fresh paint.

Who was notified of the change?

- A. Only material suppliers
- B. Every building visitor
- C. No one outside the crew
- D. Building staff

59. Study this jobsite passage: A crew planned to move materials through a shared loading corridor at midafternoon. Because another contractor scheduled painting there, the foreperson shifted the move to the start of the shift and notified building staff. The change kept the loading corridor clear and prevented dust from settling on fresh paint.

What was one result of the change?

- A. Fresh paint remained free of moving dust
- B. The hallway became permanently restricted
- C. The painting was moved to another floor
- D. The materials were left outdoors

60. Study this jobsite passage: A crew planned to move materials through a shared loading corridor at midafternoon. Because another contractor scheduled painting there, the foreperson shifted the move to the start of the shift and notified building staff. The change kept the loading corridor clear and prevented dust from settling on fresh paint.

Which quality did the foreperson demonstrate?

- A. Avoidance of all communication
- B. Coordination with affected parties
- C. Preference for unnecessary delay
- D. Refusal to change a schedule

61. Study this jobsite passage: During inventory, Simone counted twelve sealed packages but the digital inventory showed thirteen. She checked the previous day's usage record and found that one container had been used but not deducted. After verifying the signature, she corrected the record and noted the reason.

What caused the inventory difference?

- A. A used container was not deducted
- B. Priya counted one container twice
- C. A new shipment was not recorded

D. The electronic record deleted twelve items

62. Study this jobsite passage: During inventory, Simone counted twelve sealed packages but the digital inventory showed thirteen. She checked the previous day's usage record and found that one container had been used but not deducted. After verifying the signature, she corrected the record and noted the reason.

What did Simone verify before correcting the record?

- A. The price of every container
- B. The signature on the issue log
- C. The delivery driver's license
- D. The dimensions of the storage room

63. Study this jobsite passage: During inventory, Simone counted twelve sealed packages but the digital inventory showed thirteen. She checked the previous day's usage record and found that one container had been used but not deducted. After verifying the signature, she corrected the record and noted the reason.

Why did she note the reason for the correction?

- A. To increase the physical inventory
- B. To replace the missing container
- C. To avoid checking the issue log
- D. To preserve an explanation of the change

64. Study this jobsite passage: During inventory, Simone counted twelve sealed packages but the digital inventory showed thirteen. She checked the previous day's usage record and found that one container had been used but not deducted. After verifying the signature, she corrected the record and noted the reason.

The word 'deducted' most nearly means:

- A. Added to the delivery order

- B. Sealed inside another container
- C. Subtracted from the recorded total
- D. Moved to a higher shelf

65. Study this jobsite passage: During inventory, Simone counted twelve sealed packages but the digital inventory showed thirteen. She checked the previous day's usage record and found that one container had been used but not deducted. After verifying the signature, she corrected the record and noted the reason.

Which statement best describes Simone's method?

- A. She changed the count without evidence
- B. She reconciled records before making a correction
- C. She discarded the issue log
- D. She assumed the physical count was wrong

66. Apply the relevant mechanical principle: a spring is compressed farther within its elastic range. The restoring force generally:

- A. Increases
- B. Decreases to zero
- C. Remains unrelated to compression
- D. Always reverses permanently

67. Apply the relevant mechanical principle: which arrangement places two electrical loads across the same voltage source independently?

- A. A single series path
- B. An open circuit only
- C. A grounded enclosure
- D. A parallel circuit

68. Apply the relevant mechanical principle: what happens to current in a simple series circuit if total resistance increases while voltage stays constant?

- A. Current increases
- B. Current becomes infinite
- C. Current decreases
- D. Current is unchanged

69. Apply the relevant mechanical principle: which material is typically the best electrical conductor?

- A. Copper
- B. Dry wood
- C. Rubber
- D. Glass

70. Apply the relevant mechanical principle: a fuse opens a circuit when:

- A. Voltage is exactly zero
- B. Current exceeds its rated safe level
- C. A load operates normally
- D. Resistance becomes safely high

71. Apply the relevant mechanical principle: why does a sharp cutting edge require less force than a dull edge?

- A. It removes all friction
- B. It increases contact area
- C. It eliminates material strength
- D. It concentrates force over less area

72. Apply the relevant mechanical principle: a screw converts rotational input mainly into:

- A. Random vibration only
- B. Electrical current
- C. Linear motion and force
- D. Fluid pressure without motion

73. Apply the relevant mechanical principle: which fastener is least likely to loosen under vibration when properly installed?

- A. A prevailing-torque locknut
- B. A plain unrestrained nut
- C. A loose smooth pin
- D. An undersized washer alone

74. Apply the relevant mechanical principle: when equal forces act in opposite directions on an object, the net force is:

- A. Twice either force
- B. Directed upward
- C. Zero
- D. Always rotational

75. Apply the relevant mechanical principle: momentum of a moving object depends on its:

- A. Color and temperature
- B. Mass and velocity
- C. Volume only
- D. Height only

76. Apply the relevant mechanical principle: a long lever and a short lever lift the same load with the fulcrum equally close to the load. Which requires less input force?

- A. The shorter lever
- B. Both require zero force
- C. Length makes no difference
- D. The longer lever

77. Apply the relevant mechanical principle: two meshed external gears turn without slipping. If the driving gear turns clockwise, how does the driven gear turn?

- A. Clockwise
- B. Counterclockwise
- C. It cannot rotate
- D. In alternating directions

78. Apply the relevant mechanical principle: a small gear drives a larger gear. Compared with the small gear, the larger gear generally turns:

- A. More slowly with greater torque
- B. Faster with greater torque
- C. More slowly with less torque
- D. At the same speed and torque

79. Apply the relevant mechanical principle: in an ideal fixed pulley, the main advantage is that it:

- A. Cuts the load weight in half
- B. Doubles the rope speed
- C. Changes the direction of the pull
- D. Stores energy in the rope

80. Apply the relevant mechanical principle: an ideal movable pulley is supported by two rope segments. What input force lifts a 200-pound load?

- A. 50 pounds
- B. 200 pounds
- C. 400 pounds
- D. 100 pounds

81. Apply the relevant mechanical principle: if friction between two sliding surfaces increases, the force needed to keep them moving generally:

- A. Decreases
- B. Becomes zero
- C. Increases
- D. Reverses direction

82. Apply the relevant mechanical principle: why is a wide base helpful for a freestanding object?

- A. It raises the center of gravity
- B. It eliminates the object's weight
- C. It increases all vibration
- D. It improves resistance to tipping

83. Apply the relevant mechanical principle: a load is moved up a longer, less steep ramp to the same height. Ideally, the required force is:

- A. Lower over a greater distance
- B. Higher over a shorter distance
- C. Unchanged over zero distance
- D. Lower with no work required

84. Apply the relevant mechanical principle: what happens to fluid pressure applied to a confined liquid?

- A. It disappears at the container wall
- B. It is transmitted throughout the liquid
- C. It acts only downward
- D. It changes entirely into heat

85. Apply the relevant mechanical principle: a small hydraulic piston acts on a larger piston. The larger piston can produce:

- A. Greater force with less travel
- B. Less force with more pressure
- C. Equal force with greater speed
- D. No force unless fluid compresses

86. Apply the relevant mechanical principle: which condition causes the greatest bending effect on a cantilever beam?

- A. The same load near the fixed end
- B. No load on the beam
- C. A load applied near the free end
- D. A support added at the free end

87. Apply the relevant mechanical principle: when a metal rod is heated and free to move, it generally:

- A. Contracts in length
- B. Expands in length
- C. Keeps exactly the same dimensions
- D. Loses all stiffness immediately

88. Apply the relevant mechanical principle: a counterweight balances much of an elevator car's mass primarily to:

- A. Increase guide-rail friction
- B. Eliminate every safety device
- C. Make the car heavier at all times
- D. Reduce the motor effort required

89. Apply the relevant mechanical principle: if a rotating shaft is badly out of balance, it is most likely to cause:

- A. Perfectly smooth motion
- B. Immediate cooling
- C. Uniform static pressure
- D. Vibration

90. Apply the relevant mechanical principle: why are bearings used around rotating shafts?

- A. To reduce friction and support the shaft
- B. To prevent every axial movement
- C. To increase surface wear
- D. To stop all rotation

91. Apply the relevant mechanical principle: a belt drive slips on its pulley. Which change most directly improves traction?

- A. Adding lubricant to the pulley
- B. Reducing belt contact
- C. Increasing proper belt tension
- D. Polishing both surfaces with oil

92. Apply the relevant mechanical principle: what is the purpose of lubrication between moving metal parts?

- A. To increase abrasive contact
- B. To reduce friction and wear
- C. To permanently bond the parts
- D. To raise impact loading

93. Apply the relevant mechanical principle: if the same force acts on half the area, the pressure becomes:

- A. Half as great
- B. Four times smaller
- C. Twice as great
- D. Exactly unchanged

94. Select the proper tool or measurement: which tool is intended to grip and turn round pipe?

- A. A combination square
- B. A wood rasp
- C. A socket extension
- D. A pipe wrench

95. Select the proper tool or measurement: before using a portable power tool, the operator should first:

- A. Inspect the tool, cord, and guard
- B. Remove every safety guard
- C. Carry it by the cord
- D. Defeat the trigger lock

96. Select the proper tool or measurement: which tool is designed to tighten a hexagonal bolt head while minimizing rounding?

- A. A flat file

- B. A correctly sized box-end wrench
- C. Diagonal cutting pliers
- D. A cold chisel

97. Select the proper tool or measurement: which tool is used primarily to cut electrical wire cleanly?

- A. Slip-joint pliers
- B. A center punch
- C. A box-end wrench
- D. Diagonal cutting pliers

98. Select the proper tool or measurement: what is the safest choice for driving a Phillips-head screw?

- A. A slotted screwdriver tip
- B. The correctly sized Phillips screwdriver
- C. A pair of locking pliers
- D. A steel measuring rule

99. Select the proper tool or measurement: which tool is best for checking whether a surface is horizontal?

- A. A claw hammer
- B. A pipe wrench
- C. A spirit level
- D. A wire stripper

100. Select the proper tool or measurement: on a standard inch tape measure, what does the mark halfway between 3 inches and 4 inches represent?

- A. 3 1/2 inches
- B. 3 1/4 inches

- C. $3\frac{3}{4}$ inches
- D. $3\frac{7}{8}$ inches

Practice Exam 16: Answer Key and Explanations

1. **B** — The rate is 6 brackets per hour, and 6 times 7 hours equals 42 brackets. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.
2. **D** — Seven feet equals 84 inches; adding 9 inches gives a total of 93 inches. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.
3. **A** — Each hour contains 60 minutes, so 2.5 times 60 equals 150 minutes. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.
4. **C** — Rectangle area equals length times width, so 12 times 7 equals 84 square feet. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.
5. **B** — Perimeter is twice the sum of length and width: two times 14 equals 28 feet. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.
6. **C** — Volume equals length times width times height, so 4 times 3 times 2 equals 24 cubic feet. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.
7. **D** — The hundredths digit is 8, so the tenths digit rounds upward and the result is 47.6. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.
8. **A** — The four values total 80; dividing by four values gives an average of 20. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding.

The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

9. C — Dividing the total cost of 114 dollars by 6 identical cables gives 19 dollars per cable. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

10. D — The added 24 gallons represents three-tenths of capacity; 24 divided by 0.3 equals 80 gallons. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

11. A — Aligning decimal places and subtracting 2.375 from 15.750 gives 13.375 inches. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

12. B — One-fourth equals two-eighths, so five-eighths is complete and three-eighths remains. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

13. A — Multiplying both sides by 5 gives $2x$ equals 70; dividing by 2 gives x equals 35. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

14. C — Adding hundreds, tens, and ones gives 981; regrouping is required in both the ones and tens columns. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

15. B — Borrowing across place values gives 1,205 minus 678 equals 527. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

16. D — The product is 36 times 20 plus 36 times 4, or 720 plus 144, which equals 864. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

17. D — Because 24 times 42 equals 1,008, the quotient is 42. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other

choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

18. C — Converting three-fourths to six-eighths gives eleven-eighths in total, which is $1\frac{3}{8}$. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

19. B — Two-thirds equals six-ninths, so seven-ninths minus six-ninths leaves one-ninth. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

20. A — Writing the mixed numbers as $5\frac{1}{2}$ and $6\frac{1}{5}$ allows cancellation, leaving 3. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

21. A — Dividing by three-fourths means multiplying $\frac{9}{2}$ by $\frac{4}{3}$, which simplifies to 6. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

22. B — The decimal 0.375 equals $\frac{375}{1000}$; dividing numerator and denominator by 125 gives $\frac{3}{8}$. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

23. C — Dividing 7 by 20, or converting to $\frac{35}{100}$, gives the decimal 0.35. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

24. D — Converting 18 percent to 0.18 and multiplying by 250 gives 45. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

25. B — The increase is 12 inches; dividing 12 by the original 80 gives 0.15, or 15 percent. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

26. C — Five-eighths of 40 is 25, so the equivalent ratio is 25 bolts to 40 washers. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding.

The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

27. A — Subtracting 7 gives $4x$ equals 32; dividing by 4 gives x equals 8. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

28. D — Dividing by 3 gives y minus 2 equals 7, so y equals 9. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

29. D — Parentheses give 3, the exponent gives 9, multiplication gives 27, and adding 6 gives 33. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

30. B — Converting all values to decimals gives about 0.833, 0.78, 0.80, and 0.81; therefore $\frac{5}{6}$ is greatest. Working carefully in the stated order prevents common errors involving place value, signs, fractions, and premature rounding. The other choices reflect typical arithmetic slips rather than the required result. Careful setup and verification are essential for reliable work and accurate exam decisions.

31. C — Mateo treated the repeated trip as evidence of a problem and found damaged insulation in the added cord. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks.

32. A — The passage says he disconnected the added load before inspecting the cord. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

33. D — Damaged insulation was found near the plug on the extension cord. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

34. A — An out-of-service tag communicates that damaged equipment must not be used pending replacement. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

35. C — His decision to stop resetting and inspect the added load shows that repeated trips signal a condition requiring investigation. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks.

36. B — The passage directly connects the revised Thursday closure to the delayed replacement part. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

37. A — The coordinator posted updates at both entrances and also emailed tenants. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

38. B — The final action described is confirmation of delivery before the repair team mobilized. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

39. C — In this work context, mobilizing means organizing personnel and equipment and moving them into position. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam.

40. D — The coordinator updated affected people and the team confirmed the necessary part before committing resources. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam.

41. D — The central point is that Lena's review found conflicting identification and prevented the crew from servicing the wrong equipment. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks.

42. B — The passage directly states that the listed landing did not match the equipment number, prompting clarification. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate.

43. A — The sequence ends with the crew isolating power after the supervisor corrected the order. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a

relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

44. C — In context, brief describes the delay's duration, so it means short rather than detailed, severe, or uncertain. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks.

45. C — The avoided error supports confirming identifiers before beginning work or applying energy-control procedures. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

46. A — The passage emphasizes Omar's orderly response to weather and a package addressed to another site. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam.

47. B — The stated reason is that the package label identified a different site. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

48. D — Comparison of the packing slip and labels is the action that revealed the mismatch. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

49. B — Discrepancy refers to the mismatch between the package's destination and the receiving site. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

50. A — He kept the package unopened, separated it, and documented the mismatch, preserving it while reporting the problem. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks.

51. D — The mechanic used observation, inspection, replacement, and confirmation to diagnose and correct the scraping sound. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam.

52. C — The first sentence limits the original sound to upward travel. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

53. D — The passage explicitly says the mechanic first checked for loose debris. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

54. A — The second controlled run verified that replacing the worn insert eliminated the sound. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

55. C — Faint characterizes the low intensity of the sound, meaning it was slight or hard to hear. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate.

56. B — The shared noon schedule would create congestion and dust during the other contractor's painting work. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam.

57. C — Shifting the material move to early morning separated the two activities. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

58. D — The passage specifically states that the foreperson notified building staff. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

59. A — Separating the activities prevented dust from settling on the fresh paint. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

60. B — The foreperson recognized an interaction, adjusted timing, and notified others who would be affected. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

61. A — The issue log showed one container had been used without a corresponding deduction from the record. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate.

62. B — The passage states that she verified the signature before changing the electronic record. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

63. D — Recording the reason creates a traceable explanation for why the electronic count was changed. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

64. C — In inventory context, deducted means removed or subtracted from the recorded quantity. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam decisions.

65. B — Priya compared the physical count, electronic record, issue log, and signature before documenting a correction. This answer follows the passage's actual wording and logical emphasis. The distractors either reverse a relationship, introduce an unsupported idea, or focus on a detail that does not answer what the question asks. Careful setup and verification are essential for reliable work and accurate exam.

66. A — Hooke's law states that spring force is proportional to displacement within the elastic range, so more compression produces more restoring force. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

67. D — Parallel branches connect across the same two nodes, so each load receives the source voltage and has its own current path. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

68. C — Ohm's law gives current as voltage divided by resistance, so greater resistance at constant voltage produces less current. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate.

69. A — Copper has many mobile charge carriers and low resistivity, unlike common insulating materials such as rubber, glass, and dry wood. The result follows from the stated physical relationship

between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

70. B — Excess current heats the fuse element until it melts, interrupting the circuit before conductors or equipment overheat. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam.

71. D — A sharp edge applies the force over a smaller area, producing greater pressure that more readily separates material. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate.

72. C — Helical threads act as an inclined plane wrapped around a cylinder, converting rotation into controlled axial movement and force. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

73. A — A prevailing-torque locknut maintains frictional resistance on the threads, making unintended rotation under vibration less likely. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam decisions.

74. C — Equal opposing forces cancel vectorially, producing zero net force, although separate forces may still create a couple if not collinear. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

75. B — Linear momentum is defined as mass multiplied by velocity, so both the amount of matter and motion determine it. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

76. D — A longer effort arm produces more torque for the same applied force, so less force is needed to balance or raise the load. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

77. B — Meshed external gears rotate in opposite directions because contact at their pitch surfaces reverses tangential motion. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing,

friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam decisions.

78. A — The larger driven gear makes fewer revolutions while gaining torque in proportion to the gear-size ratio, apart from losses. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

79. C — A single fixed pulley redirects force but provides an ideal mechanical advantage of one, so it does not reduce force magnitude. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

80. D — Two supporting segments share the load equally, so each carries 100 pounds of tension in the ideal system. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate.

81. C — Greater sliding friction opposes motion more strongly, requiring a larger applied force to maintain the same movement. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam.

82. D — A wider support base allows the center-of-gravity projection to move farther before passing outside the base and causing tipping. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

83. A — An inclined plane trades increased travel distance for reduced input force while ideal work remains equal to the gain in potential energy. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

84. B — Pascal's principle states that pressure applied to a confined fluid is transmitted undiminished throughout the fluid and to container surfaces. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

85. A — Equal fluid pressure acting on a larger area creates greater output force, while volume continuity causes the larger piston to travel less distance. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

86. C — For the same load, bending moment at the fixed support increases with the load's distance from that support. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate.

87. B — Most metals undergo thermal expansion because average atomic spacing increases as temperature rises. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam decisions.

88. D — Balancing the car and a portion of rated load reduces the unbalanced mass the drive must accelerate and lift. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions.

89. D — An off-center mass produces a rotating centrifugal force that changes direction continuously and appears as vibration. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam decisions.

90. A — Bearings support loads while providing rolling or low-friction sliding surfaces that permit controlled shaft rotation. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam decisions.

91. C — Within safe limits, proper tension raises normal force and available friction between belt and pulley, reducing slip. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam.

92. B — A lubricant separates surface asperities with a film, lowering friction, heat generation, and material wear. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under the described conditions. Careful setup and verification are essential for reliable work and accurate exam decisions.

93. C — Pressure equals force divided by area; halving area with constant force doubles the pressure. The result follows from the stated physical relationship between force, motion, distance, and mechanical advantage. The other choices confuse direction, speed, load sharing, friction, or energy transfer under

the described conditions. Careful setup and verification are essential for reliable work and accurate exam decisions.

94. D — A pipe wrench has serrated jaws and an adjustable design that bite into round pipe when torque is applied. Choosing the proper tool improves control, protects the workpiece, and reduces injury risk. The alternatives may be useful for different operations, but they do not match the specific gripping, cutting, fastening, or measuring task described.

95. A — A pre-use inspection can reveal damaged cords, missing guards, loose parts, or other hazards before the tool is energized. Choosing the proper tool improves control, protects the workpiece, and reduces injury risk. The alternatives may be useful for different operations, but they do not match the specific gripping, cutting, fastening, or measuring task described.

96. B — A correctly sized box-end wrench surrounds the fastener head on multiple flats, giving secure contact and reducing rounding. Choosing the proper tool improves control, protects the workpiece, and reduces injury risk. The alternatives may be useful for different operations, but they do not match the specific gripping, cutting, fastening, or measuring task described.

97. D — Diagonal cutting pliers have opposed beveled jaws designed to shear wire close to a surface. Choosing the proper tool improves control, protects the workpiece, and reduces injury risk. The alternatives may be useful for different operations, but they do not match the specific gripping, cutting, fastening, or measuring task described.

98. B — The correct Phillips driver seats fully in the cross recess, transmitting torque with less slipping and fastener damage. Choosing the proper tool improves control, protects the workpiece, and reduces injury risk. The alternatives may be useful for different operations, but they do not match the specific gripping, cutting, fastening, or measuring task described.

99. C — A spirit level uses the position of a bubble in a vial to indicate whether a surface is level or plumb. Choosing the proper tool improves control, protects the workpiece, and reduces injury risk. The alternatives may be useful for different operations, but they do not match the specific gripping, cutting, fastening, or measuring task described.

100. A — The midpoint divides the one-inch interval into two equal halves, so it represents 3 1/2 inches. Choosing the proper tool improves control, protects the workpiece, and reduces injury risk. The alternatives may be useful for different operations, but they do not match the specific gripping, cutting, fastening, or measuring task described.