

Elevator aptitude test (EIAT): free printable sample

12 practice questions with a worked solution for each: a reading passage with 5 blanks, 3 mechanical and 3 math questions from our free full-length practice test, and 1 tools and measuring question.

How to use it. Work each question on paper, without a calculator. NEIEP's 2024 study guide and its FAQ give no calculator rule, and we practice without one. Give yourself about 11 minutes, our practice pace. Then check your answers and read the solution to every question you missed.

In reading, pick the word that fits each numbered blank. In math, No answer means none of the other four choices is right.

nodixam is not affiliated with NEIEP, the IUEC or any elevator apprenticeship program. These are our own practice questions. The reading, mechanical and math questions follow the format NEIEP's study guide shows. The tools and measuring question is our own practice.

Questions

How elevator ropes are checked

The steel ropes that hold an elevator car look like solid cables. In fact, each one is made of many thin wires. The wires are twisted into strands, and the strands are twisted around a center core. This design makes a rope ____1____ enough to bend over a wheel many times a day without snapping. Even so, no rope lasts forever. Each time it runs over the wheel, the outer wires rub and ____2____. Inspectors check the ropes on a regular schedule. They look for broken wires, flat spots and rust, and they measure how thick each rope is. A rope that has grown ____3____ has lost metal and strength. One broken wire is usually not a crisis, ____4____ several broken wires close together are a warning sign, and the rope must be ____5____ soon.

1 Which word fits blank 1?

A rigid

C expensive

B fragile

D flexible

2 Which word fits blank 2?

A heal

C wear

B thicken

D bloom

3 Which word fits blank 3?

- A** thinner
C happier

- B** thicker
D taller

4 Which word fits blank 4?

- A** so
C since

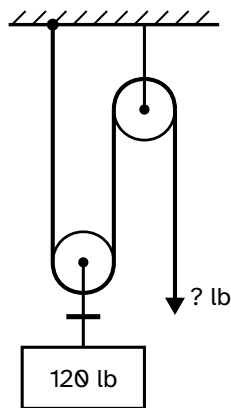
- B** or
D but

5 Which word fits blank 5?

- A** praised
C replaced

- B** buried
D framed

6 To raise the load 1 foot, how hard must the hand pull, and how much rope must it pull? Ignore friction and the weight of the pulleys and rope.

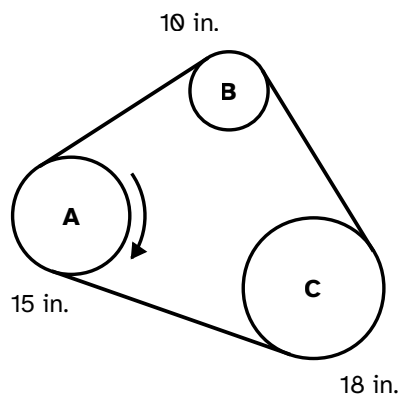


A 40 lb, 2 feet

B 60 lb, 2 feet

C 120 lb, 2 feet

7 Pulley A turns clockwise at 390 rpm, as the arrow shows. Which way and how fast does pulley C turn?

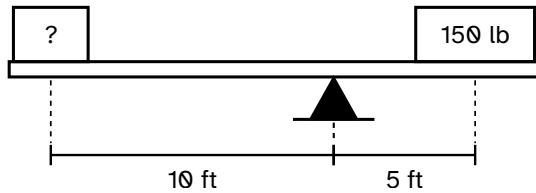


A Clockwise, 468 rpm

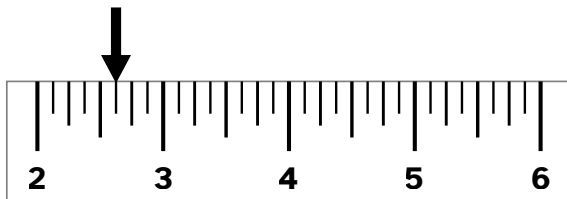
B Counterclockwise, 325 rpm

C Clockwise, 325 rpm

- 8 What weight in place of the question mark balances the beam? Ignore the weight of the beam.



- A 75 lb B 300 lb C 50 lb
- 9 $7.1 \times 5 =$
- A 42.6 B 355 C 12.1 D 35.5 E No answer
- 10 Consider the formula $I = P/V$. Which of these is the same formula solved for P?
- A $P = V/I$ B $P = IV$ C $P = I + V$ D $V = P/I$ E No answer
- 11 $28 - 4 + 14 \times 81 \div 9 =$
- A 47 B 150 C 158 D 10230 E No answer
- 12 What length does the arrow show?



- A $3 \frac{5}{8}$ in B $2 \frac{5}{8}$ in
- C $2 \frac{1}{2}$ in D $2 \frac{5}{16}$ in

Answers and worked solutions

Answer key

1 D	2 C	3 A	4 D	5 C	6 B	7 C	8 A	9 D	10 B	11 B
12 B										

Worked solutions

1 **D. flexible** Words that fit the sentence

Which word fits blank 1?

Something flexible bends without breaking, which is what the rope must do over the wheel.

Why the others are wrong

- A.** A rigid rope would not bend easily, but this rope must bend over the wheel.
- B.** A fragile rope would snap, but the sentence says it bends without snapping.
- C.** Cost has nothing to do with bending without snapping.

2 **C. wear** Clues from the whole passage

Which word fits blank 2?

The sentence before says no rope lasts forever, and rubbing is how the outer wires wear.

Why the others are wrong

- A.** The sentence before says no rope lasts forever, so the wires do not heal as they rub.
- B.** Rubbing takes metal away, and the passage later says a worn rope grows thinner.
- D.** Only plants bloom; steel wires cannot.

3 **A. thinner** Words that fit the sentence

Which word fits blank 3?

A rope that has lost metal is thinner than it was.

Why the others are wrong

- B.** Losing metal makes a rope thinner, not thicker.
- C.** A rope has no feelings.
- D.** A rope is measured by how thick it is, and losing metal does not make it taller.

4 **D. but** Linking words

Which word fits blank 4?

One broken wire is not serious, but several close together are, and but marks that contrast.

Why the others are wrong

- A.** So would make the warning sign a result of one wire not being a crisis, which makes no sense.
- B.** Or offers a choice, but the sentence compares one broken wire with several.
- C.** Since gives a reason, but one wire not being a crisis does not explain why several wires are a warning.

5 C. replaced Words that fit the sentence

Which word fits blank 5?

A rope with many broken wires is unsafe, so it must be replaced.

Why the others are wrong

- A.** A worn rope is not something to praise.
- B.** A worn rope is taken off and swapped for a new one, not buried.
- D.** No one frames a worn rope.

6 B. 60 lb, 2 feet Pulleys

To raise the load 1 foot, how hard must the hand pull, and how much rope must it pull? Ignore friction and the weight of the pulleys and rope.

1. Count the rope strands that hold up the moving pulley: 2.
2. $\text{Pull} = 120 \div 2 = 60 \text{ lb.}$
3. Each of the 2 strands shortens by 1 foot, so the rope pulled $= 1 \times 2 = 2 \text{ feet.}$
4. So the answer is 60 lb, 2 feet.

Why the others are wrong

- A.** The rope length is right, but only 2 strands hold up the moving pulley, not 3.
- C.** The rope length is right, but the 2 strands holding up the moving pulley share the load, so the pull is the load divided by 2.

7 C. Clockwise, 325 rpm Belts and wheels

Pulley A turns clockwise at 390 rpm, as the arrow shows. Which way and how fast does pulley C turn?

1. A pulley inside the loop of the belt turns the same way as the driver; a pulley pressing on the back of the belt, outside the loop, turns the other way.
2. Pulley C turns clockwise.
3. Every rim moves at the belt's speed, so speed $= 390 \times 15 \div 18 = 325 \text{ rpm.}$
4. So the answer is Clockwise, 325 rpm.

Why the others are wrong

- A.** The direction is right, but the diameters are upside down: $390 \times 18 \div 15$. The smaller pulley turns faster.
- B.** The speed is right, but pulley C sits inside the loop of the belt, like pulley A, so the belt turns it the same way.

8 A. 75 lb Levers and balance

What weight in place of the question mark balances the beam? Ignore the weight of the beam.

1. The beam balances when weight times distance is the same on both sides.
2. Known side: $150 \times 5 = 750$.
3. Weight needed: $750 \div 10 = 75 \text{ lb.}$
4. So the answer is 75 lb.

Why the others are wrong

- B.** You set up the ratio upside down. The weight farther from the fulcrum must be the lighter one.
- C.** You divided by the whole beam, 15 feet, instead of the 10 feet from the fulcrum.

9 D. 35.5 Decimals

$$7.1 \times 5 =$$

1. Multiply as whole numbers: $71 \times 5 = 355$.
2. 7.1 has 1 decimal place and 5 has 0, so the answer has 1: 35.5.
3. So the answer is 35.5.

Why the others are wrong

- A. You multiplied by 6 instead of 5.
- B. Count the decimal places in the two numbers: $1 + 0 = 1$. This puts the point one place too far to the right.
- C. You added instead of multiplying.
- E. One of choices A to D is right: 35.5.

10 B. $P = IV$ Formulas

Consider the formula $I = P/V$. Which of these is the same formula solved for P?

1. P is divided by V, so undo it by multiplying both sides by V.
2. $IV = (P/V) \times V$, which leaves $IV = P$.
3. Check it by putting the answer back into the formula.
4. So the answer is $P = IV$.

Why the others are wrong

- A. This puts the letters on the wrong sides of the fraction bar.
- C. This adds where it should multiply. To undo a division, multiply both sides.
- D. This is the formula solved for V. The question asks for P.
- E. One of choices A to D is right: $P = IV$.

11 B. 150 Order of operations

$$28 - 4 + 14 \times 81 \div 9 =$$

1. Do $\times$ and $\div$ from left to right, then $+$ and $-$ from left to right.
2. Step by step: $14 \times 81 = 1134$, $1134 \div 9 = 126$, $28 - 4 = 24$, $24 + 126 = 150$.
3. So the answer is 150.

Why the others are wrong

- A. You treated the $\times$ before 81 as $+$.
- C. You treated the $-$ before 4 as $+$.
- D. You treated the $\div$ before 9 as $\times$.
- E. One of choices A to D is right: 150.

12 B. $2 \frac{5}{8}$ in Reading a tape measure

What length does the arrow show?

1. The tape runs from 2 to 6 inches, with a mark every $\frac{1}{8}$ inch.
2. The arrow is past the 2 in line by 5 marks of $\frac{1}{8}$ inch each, which is $\frac{5}{8}$ inch.
3. So the arrow shows $2 \frac{5}{8}$ in.

Why the others are wrong

- A. You started from the 3 in line, but the arrow has not reached it.
- C. You counted one mark too few. The arrow is one mark farther along.
- D. You read each $\frac{1}{8}$ inch mark as $\frac{1}{16}$ inch.

Want more practice?

The full practice test the reading, mechanical and math questions come from is free at nodiexam.com/elevator-aptitude-test/practice-test/, with a timer and your score by topic. No email needed.

Full EIAT prep adds:

- 3 full-length practice tests in the simulator, each part on its own clock, with NEIEP's question counts and our times
- Each section as a test on its own, and practice by topic, timed or untimed, with worked answers
- A diagnostic test and a study plan built from your result
- Review mode: every question you missed, with its method
- Tools and measuring practice for the tool assessment: tests and practice by topic on hand tools, measuring tools, reading a tape measure and working with lengths. It is our own practice and not part of our full-length practice tests.
- Printable pack (PDF): a method sheet that covers every section, printable copies of full tests 1 to 3 and of the tools and measuring tests, with answer keys and worked solutions, and a study plan for four, two or one week. Download it any time for a year.

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