ASVABTutor

ASVAB Practice Test

Printable full-length practice test with answer key

Part	Subtest	Questions	Minutes
1	General Science (GS)	25	11
2	Arithmetic Reasoning (AR)	30	36
3	Word Knowledge (WK)	35	11
4	Paragraph Comprehension (PC)	15	13
5	Mathematics Knowledge (MK)	25	24
6	Electronics Information (EI)	20	9
7	Auto and Shop Information (AS)	25	11
8	Mechanical Comprehension (MC)	25	19
9	Assembling Objects (AO)	25	15
	Total	**225**	**149**

How to take this test

- The question counts and time limits match the paper-and-pencil ASVAB described on officialasvab.com.
- Time each part separately. Stop when the time for that part runs out.
- No calculator. Use scratch paper only.
- Answer every question. The ASVAB has no penalty for guessing.
- Check your answers with the key on the last pages.

> These are original practice questions written by ASVABTutor. They are not actual ASVAB test questions. The official ASVAB program does not give real test questions to any test prep company. More free tests: asvabtutor.com/asvab-practice-tests/

Part 1: General Science (GS)

25 questions · 11 minutes

1. Where is the magnetic force of a bar magnet strongest?

A In the exact middle
B At its two ends (the poles)
C Evenly along its whole length
D Only at the north end

2. Which part of the nervous system runs through the backbone and carries messages between the brain and the rest of the body?

A Cerebellum
B Optic nerve
C Cerebrum
D Spinal cord

3. Which part of the blood is mainly responsible for fighting infections?

A Platelets
B Red blood cells
C Plasma
D White blood cells

4. The pitch of a sound (how high or low it sounds) depends mainly on which property of the sound wave?

A Amplitude
B Frequency
C Speed
D Medium

5. What is the basic cell of the nervous system that carries electrical signals called?

A Neuron
B Osteocyte
C Nephron
D Alveolus

6. What is the point on Earth's surface directly above where an earthquake starts called?

A Epicenter
B Focus
C Magnitude
D Fault

7. After a balloon is rubbed on someone's hair, it sticks to a wall. What causes this?

A Magnetism created in the rubber
B Air pressure pushing the balloon against the wall
C Static electric charge built up by rubbing
D Moisture from the hair making the balloon sticky

8. Which of these is an example of a chemical change?

A Ice melting
B Glass breaking
C Sugar dissolving in water
D Iron rusting

9. Which organs filter wastes from the blood and produce urine?

A Lungs
B Spleen
C Kidneys
D Stomach

10. When light passes at an angle from air into water, it changes direction. What is this bending of light called?

A Refraction
B Reflection
C Diffraction
D Absorption

11. In the human female reproductive system, where does fertilization of an egg by a sperm cell usually take place?

A Lining of the uterus
B Fallopian tube
C Inside the ovary
D Cervical canal

12. The atomic number of an element is equal to the number of which particle in one atom of that element?

A Neutrons
B Protons
C Electron shells
D Protons plus neutrons

13. What is the release of water vapor into the air through the leaves of plants called?

A Condensation
B Transpiration
C Runoff
D Sublimation

14. Water at 25 degrees Celsius has approximately what temperature on the Kelvin scale?

A 248 K
B 273 K
C 285 K
D 298 K

15. One strand of a DNA molecule has the base sequence A-T-G-C. What is the sequence of the complementary DNA strand?

A T-A-C-G
B U-A-C-G
C A-T-G-C
D G-C-A-T

16. A lack of which vitamin causes scurvy, a disease marked by bleeding gums and slow wound healing?

A Vitamin C
B Vitamin A
C Vitamin D
D Vitamin K

17. Water seeps into cracks in a rock, freezes, and expands, slowly splitting the rock apart. What is this an example of?

A Chemical weathering
B Sediment deposition
C Mechanical weathering
D Regional metamorphism

18. In the human lungs, oxygen and carbon dioxide are exchanged with the blood in tiny air sacs called what?

A Bronchi
B Trachea
C Alveoli
D Larynx

19. Which seismic waves travel fastest and are the first to reach a seismograph station after an earthquake?

A P waves
B S waves
C Love waves
D Rayleigh waves

20. In a food chain, producers capture 10,000 kilocalories of energy. If about 10% of the energy passes to each next level, about how much energy reaches the secondary consumers?

A 10 kcal
B 100 kcal
C 1,000 kcal
D 9,000 kcal

21. If the speed of a moving car doubles, its kinetic energy is multiplied by what factor?

A 2
B 4
C 8
D 16

22. What is the approximate average salinity of seawater?

A 0.35%
B 3.5%
C 13%
D 35%

23. The color of a star indicates its surface temperature. Which star color indicates the hottest surface?

A Red
B Orange
C Yellow
D Blue

24. In snapdragon flowers, color shows incomplete dominance. If a red-flowered plant (RR) is crossed with a white-flowered plant (WW), what color will the offspring be?

A All white
B All pink
C Half red and half white
D All red

25. Lithium, sodium, and potassium are in the same group (column) of the periodic table and react in similar ways. What do their atoms have in common that explains this?

A The same atomic mass
B The same number of electron shells
C The same number of neutrons
D The same number of valence electrons

Part 2: Arithmetic Reasoning (AR)

30 questions · 36 minutes

1. A bike shop pays $240 for a bicycle and marks the price up 35% to sell it. What is the selling price?

A $255
B $275
C $315
D $324

2. A rope is 4 yards 2 feet long. How long is the rope in inches?

A 50 inches
B 144 inches
C 160 inches
D 168 inches

3. Gas costs $3.60 per gallon. Paul puts 15 gallons in his truck. How much does he pay?

A $54.00
B $45.00
C $50.40
D $57.60

4. A car's gas tank is 3/4 full and currently contains 18 gallons of gas. How many gallons does the tank hold when completely full?

A 13.5 gallons
B 22 gallons
C 24 gallons
D 27 gallons

5. Dana's restaurant bill is $60, and she wants to leave a 15% tip. How much should the tip be?

A $9.00
B $10.00
C $12.00
D $15.00

6. A security guard's shift starts at 10:45 p.m. and ends at 7:15 a.m. the next morning. How long is the shift?

A 7 hours 30 minutes
B 8 hours
C 8 hours 15 minutes
D 8 hours 30 minutes

7. Jordan scored 82, 90, 76, and 88 on four quizzes. What is Jordan's average quiz score?

A 83
B 84
C 86
D 88

8. Kayla answered 34 of the 40 questions on a safety exam correctly. What percent of the questions did she answer correctly?

A 75%
B 80%
C 84%
D 85%

9. Carlos drives 195 miles in 3 hours. What is his average speed?

A 45 mph
B 55 mph
C 60 mph
D 65 mph

10. At 6 a.m. the temperature was -8°F. By noon it had risen 23 degrees. What was the temperature at noon?

A 31°F
B -15°F
C -31°F
D 15°F

11. A coat regularly priced at $120 is on sale for 30% off. Sales tax of 7% is then charged on the sale price. What is the total cost of the coat?

A $84.00
B $89.88
C $92.40
D $128.40

12. A farm packs 1,140 eggs into cartons that hold 12 eggs each. The cartons are then packed into crates that hold 15 cartons each. How many crates can be completely filled?

A 6
B 7
C 8
D 9

13. A parking garage has 6 levels with 85 spaces on each level. The top level is closed for repairs, and 38 spaces on the open levels are reserved for monthly permit holders. If 312 daily customers' cars are parked in the garage, how many spaces are still open for daily customers?

A 37
B 75
C 113
D 160

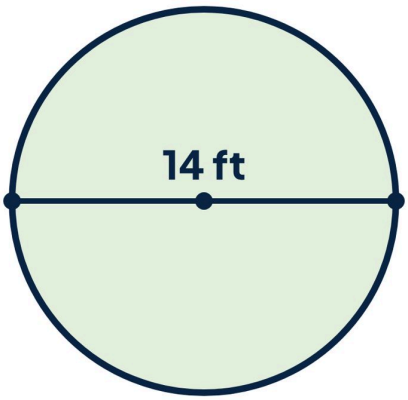
14. Alicia's monthly take-home pay is $2,400. She spends 35% on rent and 15% on food. How much money is left for everything else?

A $1,200
B $1,320
C $1,440
D $1,560

15. In a class of 36 students, the ratio of boys to girls is 4 to 5. How many girls are in the class?

A 20 girls
B 24 girls
C 27 girls
D 45 girls

16. A circular flower bed has a diameter of 14 feet. Metal edging costs $2.50 per foot. Using 22/7 for π, how much will it cost to put edging all the way around the bed?



A $55
B $110
C $154
D $385

17. A savings bond of $1,500 earns 4% simple interest per year. How much interest does it earn in 30 months?

A $60
B $120
C $150
D $180

18. A two-stroke engine runs on gasoline and oil mixed in a ratio of 50 to 1. How many ounces of oil should be mixed with 2.5 gallons of gasoline? (1 gallon = 128 ounces)

A 5.0
B 6.4
C 6.6
D 8.0

19. A coffee shop blends 3 pounds of coffee costing $8 per pound with 2 pounds of coffee costing $13 per pound. What is the cost per pound of the blend?

A $9.50
B $10.00
C $10.50
D $11.00

20. A charter plane covers 1,350 miles in 2 hours 15 minutes of flying time. What was its average speed for the flight?

A 540 mph
B 600 mph
C 628 mph
D 675 mph

21. Lena can mow a lawn by herself in 90 minutes. She mows alone for 30 minutes, and then her brother joins her. Working together, they finish the rest of the lawn in 40 minutes. How long would it take her brother to mow the whole lawn by himself?

A 2 hours
B 2.5 hours
C 3 hours
D 3.5 hours

22. An inlet pipe can fill a tank in 10 hours, and a drain can empty the full tank in 15 hours. If the tank starts empty and both are open, how many hours will it take to fill the tank?

A 6 hours
B 12.5 hours
C 25 hours
D 30 hours

23. A share of stock was priced at $64. Its price rose 25% in March and then fell 20% in April. What was the price of the share at the end of April?

A $64.00
B $67.20
C $68.00
D $72.00

24. A storage tank is 2/3 full of fuel. After 15 gallons are pumped out, the tank is 1/4 full. How many gallons does the tank hold when it is completely full?

A 24
B 30
C 36
D 45

25. A mother is 3 times as old as her son. In 12 years, she will be twice as old as her son. How old is the son now?

A 8
B 18
C 12
D 24

26. A lab technician has 20 liters of a 30% salt solution. How many liters of pure water must be added to make a 20% salt solution?

A 2 liters
B 5 liters
C 6 liters
D 10 liters

27. A painter has 27 gallons of paint mixed red to white in a ratio of 2 to 7. How many gallons of red paint must be added to make the ratio of red to white 1 to 2?

A 3 gallons
B 4.5 gallons
C 6 gallons
D 10.5 gallons

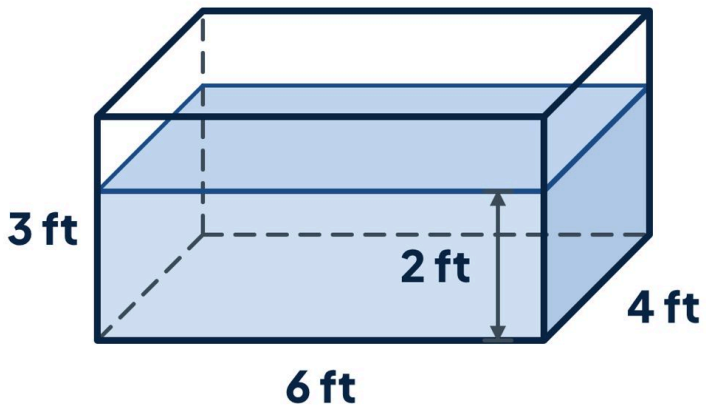
28. A runner finishes a 10-kilometer race in 50 minutes. Using 1 mile = 1.6 kilometers, what was her average pace in minutes per mile?

A 5 minutes
B 6.25 minutes
C 8 minutes
D 8.5 minutes

29. A dinner bill is $72 before tax. The sales tax is 6% of the $72, and Gabe leaves an 18% tip that is also figured on the $72. What is the total amount Gabe pays?

A $84.96
B $89.28
C $90.06
D $93.60

30. A rectangular water trough is 6 feet long, 4 feet wide, and 3 feet deep. It currently holds water to a depth of 2 feet. How many gallons of water must be added to fill it to the top? (1 cubic foot holds about 7.5 gallons.)



A 180
B 360
C 540
D 720

Part 3: Word Knowledge (WK)

35 questions · 11 minutes

1. Misinterpret most nearly means:

A explain
B translate
C misread
D memorize

2. Fragment most nearly means:

A copy
B signal
C piece
D whole

3. Abundant most nearly means:

A hidden
B expensive
C scarce
D plentiful

4. The recipe calls for a dash of salt in the sauce. Dash most nearly means:

A large scoop
B straight line
C quick run
D small amount

5. The firefighters had to evacuate the building before the roof collapsed. Evacuate most nearly means:

A enter
B repair
C inspect
D empty

6. Assist most nearly means:

A follow
B help
C refuse
D watch

7. Feeble most nearly means:

A angry
B strong
C old
D weak

8. Swift most nearly means:

A quick
B slow
C careful
D quiet

9. Precise most nearly means:

A exact
B simple
C rough
D quick

10. Conceal most nearly means:

A destroy
B carry
C hide
D reveal

11. Remedy most nearly means:

A symptom
B recipe
C injury
D cure

12. After the long hike, the scouts were famished. Famished most nearly means:

A sunburned
B starving
C lost
D sleepy

13. Hoax most nearly means:

A celebration
B apology
C contest
D trick

14. Circumvent most nearly means:

A surrender
B go through
C discover
D go around

15. Despite the setback, she remained resilient and kept training. Resilient most nearly means:

A discouraged
B competitive
C able to recover
D quick to give up

16. Elated most nearly means:

A exhausted
B relieved
C overjoyed
D surprised

17. Haughty most nearly means:

A nervous
B clumsy
C arrogant
D humble

18. Candid most nearly means:

A frank
B polite
C cheerful
D secretive

19. Before the climb, the guide gave the group some sound advice about the weather. Sound most nearly means:

A hidden
B sensible
C long-winded
D noisy

20. Incredulous most nearly means:

A gullible
B disbelieving
C ungrateful
D astonishing

21. Ponder most nearly means:

A announce
B consider
C ignore
D borrow

22. The defense attorney moved to dismiss the case for lack of evidence. Moved most nearly means:

A relocated
B hurried
C refused
D requested

23. Arduous most nearly means:

A brief
B effortless
C illegal
D strenuous

24. Prudent most nearly means:

A proud
B sensible
C reckless
D wealthy

25. With supplies running low, the stranded crew had to be parsimonious, saving every scrap of food. Parsimonious most nearly means:

A wasteful
B careless
C thrifty
D hungry

26. Gregarious most nearly means:

A quarrelsome
B reserved
C sociable
D generous

27. The once-busy mill now looked moribund, with only a handful of workers left and orders drying up. Moribund most nearly means:

A crowded
B newly built
C dying
D thriving

28. Obsequious most nearly means:

A arrogant
B clumsy
C servile
D sincere

29. The general was known for his sagacious decisions during the campaign. Sagacious most nearly means:

A swift
B reckless
C wise
D unpopular

30. Paucity most nearly means:

A abundance
B silence
C scarcity
D confusion

31. Vindicate most nearly means:

A clear of blame
B declare guilty
C punish
D accuse

32. Recalcitrant most nearly means:

A obedient
B defiant
C hesitant
D forgetful

33. The professor's lecture was so esoteric that only a few experts could follow it. Esoteric most nearly means:

A humorous
B lengthy
C obscure
D boring

34. His mendacious account of the accident was quickly disproved. Mendacious most nearly means:

A hasty
B detailed
C emotional
D dishonest

35. The chef was so fastidious that a single crumb on the counter sent him into a rage. Fastidious most nearly means:

A very particular
B cheerful
C easily satisfied
D careless

Part 4: Paragraph Comprehension (PC)

15 questions · 13 minutes

1. To all shift supervisors: Starting each shift with a five-minute safety huddle is the simplest step we can take to prevent injuries. Crews that have tried it report fewer near-misses, and workers say they feel more comfortable raising concerns. It costs nothing but a few minutes. I urge every supervisor to begin holding huddles this month. - Plant Safety Manager

The main purpose of this memo is to

A report recent injuries at the plant
B announce a new shift schedule
C explain how to report near-misses
D urge supervisors to hold huddles

2. Last summer, local artists covered the bare wall of the old train depot with a colorful mural showing the town's history. Residents say the once drab building has become a favorite spot for photographs.

As used in the passage, the word "drab" most nearly means

A crowded
B dull
C modern
D sturdy

3. The town of Cedar Falls has no full-time firefighters; instead, about forty volunteers carry pagers and respond whenever an alarm sounds. Each volunteer must complete 110 hours of training before answering calls.

According to the passage, how many hours of training must each volunteer complete before answering calls?

A 40 hours
B 110 hours
C 100 hours
D 120 hours

4. Coral reefs are built by tiny animals called polyps, which live in partnership with microscopic algae. The algae live inside the coral's tissue and, through photosynthesis, supply the coral with most of its food. They also give many corals their bright colors. When ocean water stays unusually warm for several weeks, the stressed corals expel the algae, and their tissue turns pale or white. This process is known as bleaching. A bleached coral is not dead, but it is starving. If temperatures return to normal soon enough, the algae can recolonize the coral and it may recover. If the heat lasts too long, the coral often dies, and the reef that depended on it begins to break down.

As used in the passage, the word "expel" most nearly means

A feed on
B force out
C take in
D hide from

5. Military working dogs serve alongside troops in every branch of the armed forces. Most are German shepherds, Belgian Malinois, or Labrador retrievers, breeds chosen for their intelligence, stamina, and keen sense of smell. Many of the dogs are trained at Joint Base San Antonio-Lackland in Texas, where they learn to detect explosives or drugs, track people, and guard bases. Each dog is paired with a handler, and the two train together for months to build trust. A well-trained team can search a vehicle or building far faster than people alone. When dogs retire, usually after about ten years of service, many are adopted by their former handlers.

As used in the passage, the word "keen" most nearly means

A sharp
B eager
C gentle
D limited

6. If you see a teenager or adult suddenly collapse and stop breathing normally, hands-only CPR can keep blood flowing until help arrives. First, call 911 or ask a bystander to call. Then place the heel of one hand in the center of the person's chest, put your other hand on top, and lock your elbows. Push hard and fast, pressing down about two inches at a rate of 100 to 120 compressions per minute. Allow the chest to rise fully between pushes. Keep going without stopping until trained responders take over or an automated external defibrillator, or AED, is ready to use.

According to the passage, how far should the chest be pressed down with each compression?

A About one inch
B About two inches
C About four inches
D About six inches

7. After a fall harvest, many fields are left bare until spring. Without plant roots to hold it in place, the exposed topsoil can be carried off by wind and heavy rain. Some farmers now plant cover crops, such as rye or clover, after harvest. These plants are not grown to be sold. Instead, their roots anchor the soil through the winter, and their leaves soften the impact of falling rain. When the cover crop is cut down or plowed under in spring, it decays and adds organic matter that helps the soil hold water. Clover offers an extra benefit: like other legumes, it adds nitrogen to the soil, reducing the need for fertilizer.

Based on the passage, a farmer who wants to protect soil and also cut fertilizer costs would most likely plant

A rye
B clover
C a crop grown for sale
D a crop planted only in spring

8. When the United States began building the Panama Canal in 1904, its greatest enemy was not the jungle or the mountains but the mosquito. Yellow fever and malaria had helped defeat an earlier French attempt to build a canal there, killing thousands of workers. Dr. William Gorgas, the project's chief sanitary officer, knew that mosquitoes spread both diseases. His crews drained swamps, covered water barrels, sprayed oil on standing water, and installed screens on buildings. By 1906, yellow fever had been wiped out in the Canal Zone. With a healthier workforce, the canal was completed in 1914.

The author most likely mentions the earlier French attempt in order to

A compare French and American engineers
B show how serious the threat of disease was
C explain how the canal locks were designed
D suggest that the French canal was finished first

9. Soldiers training in hot weather face a serious risk of heat injury. The body cools itself mainly by sweating, but sweat can only cool the skin if it evaporates. When humidity is high, evaporation slows, and body temperature can climb even during moderate activity. Early warning signs include headache, dizziness, and muscle cramps. Leaders are taught to watch for these symptoms, schedule demanding tasks for cooler parts of the day, and enforce regular water breaks. A soldier who becomes confused or stops sweating may be suffering from heatstroke, a medical emergency that requires immediate cooling and evacuation.

It can be concluded from the passage that heat injury is more likely on a day that is

A hot and humid than on one that is hot and dry
B hot and dry than on one that is hot and humid
C cloudy than on one that is bright and sunny
D spent resting than on one spent marching

10. Military working dogs serve alongside troops in every branch of the armed forces. Most are German shepherds, Belgian Malinois, or Labrador retrievers, breeds chosen for their intelligence, stamina, and keen sense of smell. Many of the dogs are trained at Joint Base San Antonio-Lackland in Texas, where they learn to detect explosives or drugs, track people, and guard bases. Each dog is paired with a handler, and the two train together for months to build trust. A well-trained team can search a vehicle or building far faster than people alone. When dogs retire, usually after about ten years of service, many are adopted by their former handlers.

The passage is mainly about

A why German shepherds make better pets than other breeds
B how handlers search vehicles and buildings without dogs
C the history of Joint Base San Antonio-Lackland in Texas
D how military working dogs are chosen, trained, and used

11. A credit score is a three-digit number that lenders use to estimate how likely a person is to repay borrowed money. The most widely used scores range from 300 to 850, and higher is better. The single most important factor is payment history: whether bills have been paid on time. The amount of available credit a person is using also matters a great deal; someone who regularly runs a card close to its limit may appear to be a greater risk. A higher score can mean lower interest rates on car loans and mortgages, which can save a borrower thousands of dollars over time.

Based on the passage, which person would most likely have the highest credit score?

A Ana, who pays every bill on time but keeps her card balance near its limit
B Lee, who pays every bill on time and uses a small part of his credit limit
C Kim, who misses payments and keeps her card near its limit
D Sam, who uses only a small part of his credit limit but often pays bills late

12. Bats that hunt at night locate insects by a method called echolocation. A bat produces high-pitched calls, most of them too high for humans to hear, and listens for the echoes that bounce back from objects around it. By judging how long the echoes take to return and how they change, the bat can tell an insect's size, distance, and direction. As the bat closes in on its prey, it calls faster and faster, sometimes more than 150 times per second, to track the insect's final movements. Some moths have developed a defense: they can hear bat calls and dive toward the ground when a bat approaches.

Which of the following would be the best title for this passage?

A The Limits of Human Hearing
B How Bats Use Sound to Hunt
C A Moth's Defense Against Bats
D Insects That Fly at Night

13. The Riverside Players' new production of a classic comedy has much to admire. The sets are clever, and the two leads have genuine comic timing. Yet the director seems unwilling to trust the script; nearly every joke is followed by a pratfall or a wink at the audience, as if we might otherwise miss it. By the second act, the laughter in the theater had grown noticeably thin.

The reviewer's attitude toward the production is best described as

A admiring and enthusiastic
B harsh and dismissive
C approving but critical
D amused but indifferent

14. Sunscreen labels list an SPF, or sun protection factor, which measures how well the product blocks the type of ultraviolet light that causes sunburn. A higher number means more protection, but the increase is smaller than many people assume. An SPF 15 product blocks roughly 93 percent of these rays, SPF 30 blocks about 97 percent, and SPF 50 blocks about 98 percent. No sunscreen blocks them all. In addition, protection fades as the product is rubbed off by sweat, water, or towels. For this reason, dermatologists advise applying sunscreen generously and reapplying it about every two hours outdoors, regardless of the SPF number.

Which conclusion is best supported by the passage?

A SPF 50 sunscreen does not need to be reapplied every two hours outdoors.
B SPF 15 gives about half the protection of SPF 30 against sunburn rays.
C Sunscreen works best when it is applied in a thin layer.
D Doubling the SPF number does not double the amount of protection.

15. To the Editor: The city council wants to close the Elm Street branch library on Sundays to save money. I understand the budget is tight, but Sunday is the only day many working parents can bring their children to browse and borrow books. Cutting hours on weekday mornings, when the building is nearly empty, would save just as much without shutting out the families who rely on it most.

The writer would most likely agree with which statement?

A The library budget should not be reduced in any way.
B Families depend most on the library on weekday mornings.
C The council should raise taxes instead of cutting hours.
D Cuts should target the library's least-used hours.

Part 5: Mathematics Knowledge (MK)

25 questions · 24 minutes

1. If f(x) = 3x^2 – 4, what is f(–2)?

A –16
B 2
C 8
D 32

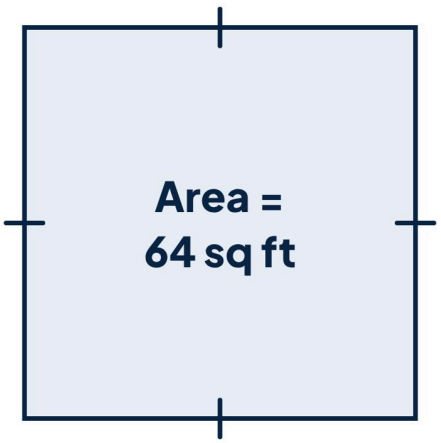
2. If x = 3, what is the value of 2x^2 – x?

A 9
B 15
C 33
D 36

3. How is 45,000 written in scientific notation?

A 4.5 × 10^–4
B 4.5 × 10^2
C 4.5 × 10^3
D 4.5 × 10^4

4. A square has an area of 64 square feet. What is its perimeter?



A 16 ft
B 32 ft
C 64 ft
D 256 ft

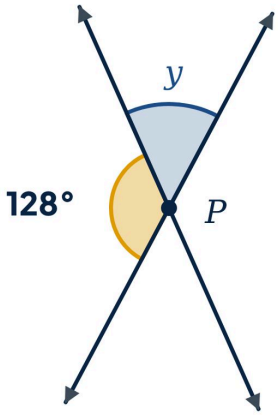
5. What is the value of 2^–3?

A –8
B –6
C –1/8
D 1/8

6. Simplify: (x^4)^3 ÷ x^5

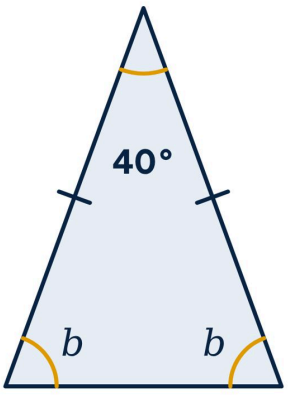
A x^7
B x^9
C x^12
D x^17

7. Two straight lines cross at a point. One of the four angles formed measures 128°. What is the measure of an angle next to it (adjacent to it)?



A 38°
B 52°
C 62°
D 128°

8. In an isosceles triangle, the vertex angle between the two equal sides measures 40°. What is the measure of each base angle?

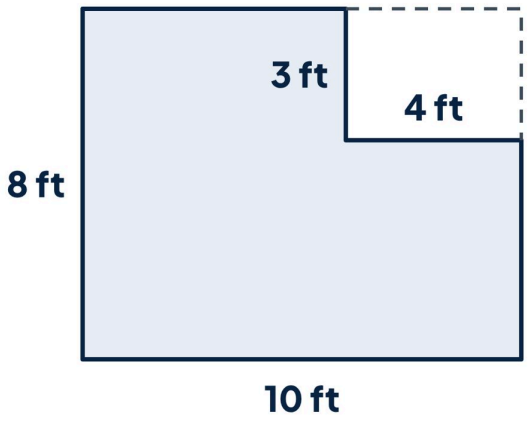


A 40°
B 70°
C 80°
D 140°

9. What is the value of 6!/4!?

A 30
B 2
C 24
D 720

10. An L-shaped patio is made by cutting a 4 ft by 3 ft rectangle from one corner of a 10 ft by 8 ft rectangle. What is the area of the patio?



A 56 sq ft
B 68 sq ft
C 72 sq ft
D 80 sq ft

11. Simplify: $3(2x - 4) - 2(x - 5)$

A $4x - 2$
B $4x + 2$
C $4x - 22$
D $8x - 22$

12. If $2x + y = 11$ and $x - y = 1$, what is the value of y?

A 3
B 4
C 5
D 12

13. What is the square root of 72 written in simplest radical form?

A $3\sqrt{6}$
B $4\sqrt{3}$
C $6\sqrt{2}$
D $9\sqrt{2}$

14. If x + y = 10 and x – y = 4, what is the value of x?

A 3
B 6
C 7
D 14

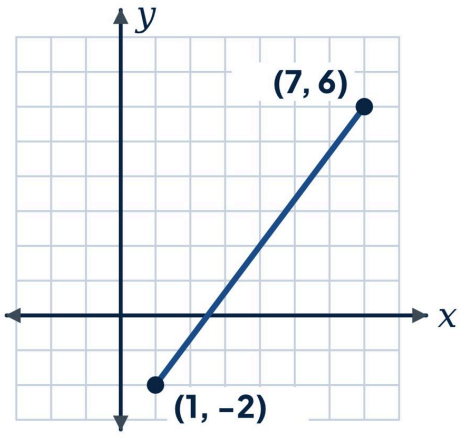
15. Simplify: √50 + √18

A 8√2
B 2√17
C 15√2
D 34

16. Which equation shows 2x + 3y = 12 solved for y?

A y = 4 – (2/3)x
B y = 12 – 2x
C y = 4 – 2x
D y = (2/3)x – 4

17. What is the distance between the points (1, –2) and (7, 6)?



A 6
B 8
C 10
D 14

18. Simplify: (4x^2 – 3x + 5) – (x^2 + 2x – 7)

A 3x^2 – x – 2
B 3x^2 – 5x + 12
C 3x^2 – 5x – 2
D 5x^2 – x – 2

19. Which inequality is the solution to $-3 < 2x + 1 \leq 9$?

A $-4 < x \leq 8$
B $-2 \leq x < 4$
C $-1 < x \leq 5$
D $-2 < x \leq 4$

20. What is the value of 16 raised to the 3/2 power?

A 24
B 48
C 64
D 96

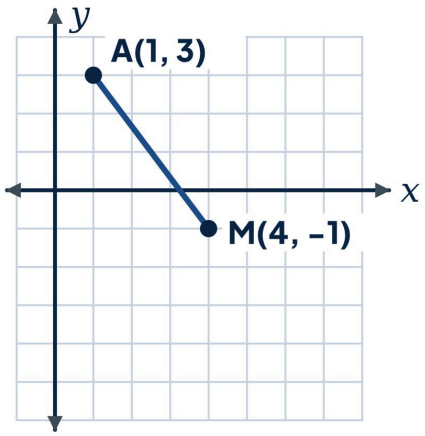
21. If $3x + 2y = 16$ and $2x - y = 6$, what is the value of $x - y$?

A 2
B 4
C 6
D 8

22. Evaluate: $(-2)^3 - (-3)^2 \times 2 \div 6$

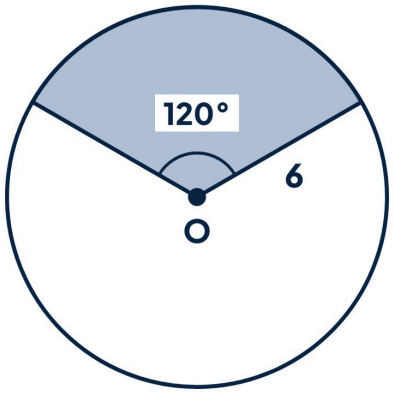
A −11
B −5
C −3
D 5

23. Point M(4, −1) is the midpoint of segment AB. If A is at (1, 3), what are the coordinates of B?



A (2.5, 1)
B (5, −4)
C (7, −5)
D (−2, 7)

24. A circle has a radius of 6. What is the area of a sector with a central angle of 120°?



A 3π
B 4π
C 6π
D 12π

25. A circle has a circumference of 18π. What is its area?

A 9π
B 18π
C 36π
D 81π

Part 6: Electronics Information (EI)

20 questions · 9 minutes

1. The flow of electric charge through a conductor is called:

A voltage
B resistance
C capacitance
D current

2. The schematic symbol shown, made of alternating long and short lines, stands for a:

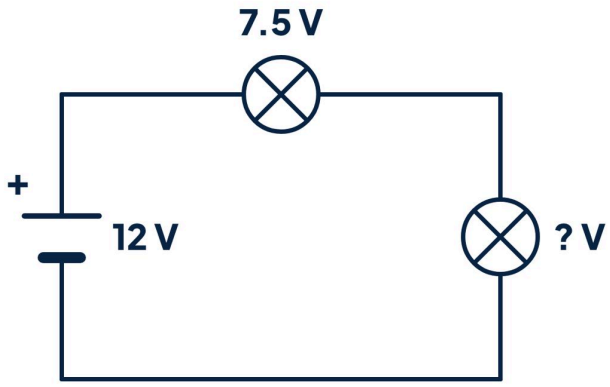


A battery
B earth ground
C nonpolarized capacitor
D switch

3. A capacitor's ability to store charge is rated in:

A farad
B henry
C ohm
D weber

4. Two lamps are connected in series across a 12-volt battery. The voltage across the first lamp is 7.5 volts. What is the voltage across the second lamp?



A 1.6 V
B 4.5 V
C 12 V
D 19.5 V

5. A 60-watt lamp is left on for 5 hours. How much energy does it use?

A 12 Wh
B 65 Wh
C 300 Wh
D 3,000 Wh

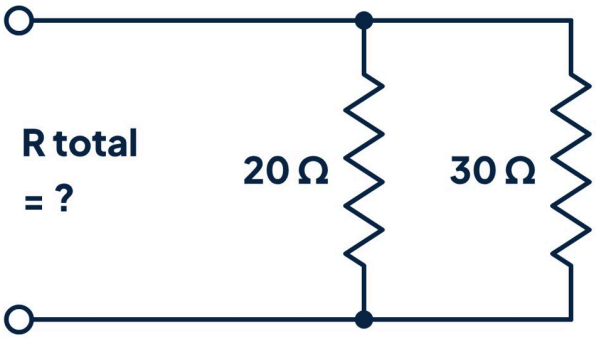
6. A standard household wall outlet in the United States supplies approximately:

A 120 volts DC
B 240 volts AC at 50 hertz
C 120 volts AC at 60 hertz
D 12 volts DC

7. Which metal is the best conductor of electricity?

A copper
B aluminum
C silver
D steel

8. A student wires a 20-ohm resistor directly across a 30-ohm resistor, putting them in parallel. What does an ohmmeter read across the pair?



A 10 ohms
B 12 ohms
C 25 ohms
D 50 ohms

9. The schematic symbol shown represents a:



A time-delay (slow-blow) fuse
B single-pole, single-throw switch
C variable resistor (potentiometer)
D non-polarized ceramic capacitor

10. What component does the schematic symbol shown represent?



A resistor
B lamp
C switch
D fuse

11. Which change increases the resistance of a copper wire?

A making the wire thicker
B making the wire shorter
C cooling the wire
D making the wire longer

12. Voltage in a circuit is best described as:

A the rate at which electrons flow past a point
B the opposition a material offers to current flow
C the electrical pressure that pushes current
D the amount of charge stored by a capacitor

13. A straight wire carries a steady direct current. If the direction of the current is reversed, the magnetic field around the wire:

A reverses its direction around the wire
B collapses to zero and does not return
C becomes twice as strong around the wire
D stays exactly the same, pointing the same way

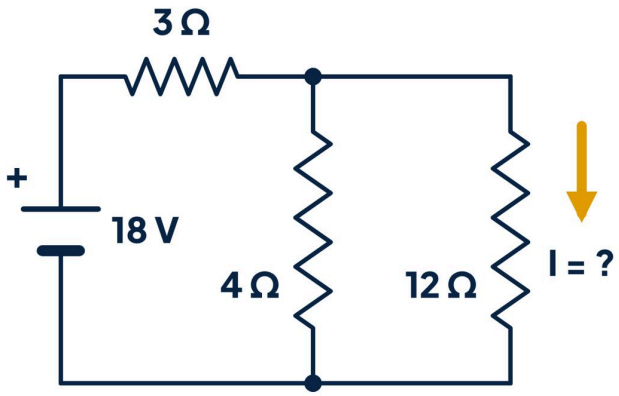
14. A half-wave rectifier built with a single diode produces an output that:

A passes both halves of each cycle with the same polarity
B is perfectly smooth DC
C doubles the frequency of the input
D passes only one half of each AC cycle

15. Pure silicon is doped with phosphorus, an element with five valence electrons. The result is:

A N-type material with extra free electrons
B P-type material with extra holes
C an insulator with no free carriers
D a pure conductor like copper

16. In the circuit shown, an 18-volt source feeds a 3-ohm resistor in series with a 4-ohm and a 12-ohm resistor in parallel. What is the total current from the source?



A 3 A
B 6 A
C 0.95 A
D 0.75 A

17. An AC voltage has a peak value of 170 volts. What is its approximate effective (RMS) value?

A 85 V
B 120 V
C 170 V
D 240 V

18. As the frequency of an AC signal increases, a capacitor's opposition to the current (its capacitive reactance):

A increases
B stays the same
C decreases
D rises and then falls

19. An AC supply is rated at 230 volts RMS. What is its approximate peak voltage?

A 163 V
B 230 V
C 325 V
D 460 V

20. Two three-way switches control one ceiling light from either end of a hallway. The two wires that run between the switches are called:

A neutrals
B grounds
C travelers
D feeders

Part 7: Auto and Shop Information (AS)

25 questions · 11 minutes

1. What is the main job of a vehicle's shock absorbers?

A To dampen bouncing of the springs
B To keep the wheels in alignment
C To hold up the weight of the vehicle
D To turn the front wheels

2. What does the part shown do in a fuel-injected engine?



A Measure the oxygen left in the exhaust gases after combustion
B Filter dirt and rust out of the fuel before it reaches the fuel rail and engine
C Spray a precisely measured amount of fuel as a fine mist into the engine
D Create the spark that ignites the compressed air-fuel mixture in the cylinder

3. In a car with a manual transmission, which component lets the driver disconnect the engine from the transmission to change gears?

A Torque converter
B Differential
C Universal joint
D Clutch

4. In a gasoline engine's ignition system, which component steps up the 12-volt battery voltage to the thousands of volts needed to fire the spark plugs?

A Voltage regulator
B Ignition coil
C Alternator
D Starter solenoid

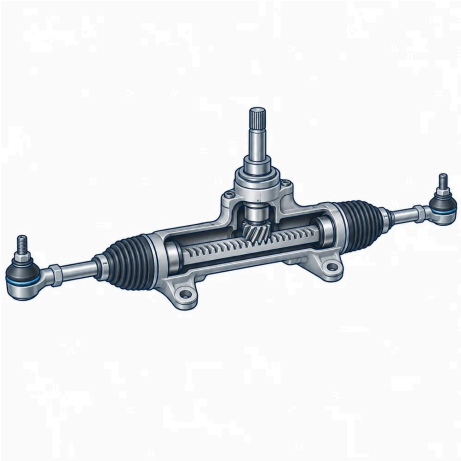
5. Which engine part converts the up-and-down motion of the pistons into rotating motion?

A Flywheel
B Camshaft
C Timing belt
D Crankshaft

6. In a car with a conventional automatic transmission, which component replaces the clutch to couple the engine to the transmission?

A Torque converter
B Pressure plate
C Universal joint
D Differential

7. In a rack-and-pinion steering system, the pinion gear turns with the steering wheel. How does the rack move in response?



A Up and down with the suspension
B In a circle, along with the pinion
C Side to side in a straight line
D Forward and backward along the frame

8. What does the differential allow the drive wheels to do?

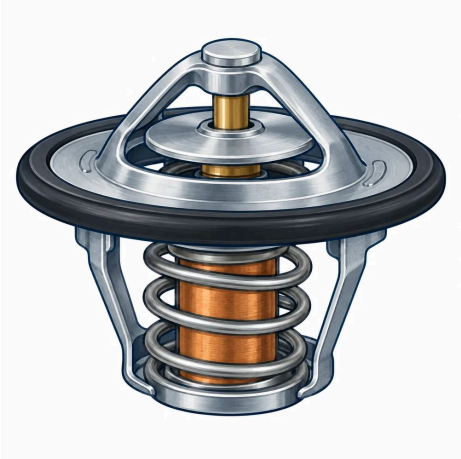
A Change from one gear ratio to the next as the vehicle speeds up
B Lock together the front and rear axles for better traction on ice
C Turn at different speeds when the vehicle goes around a corner
D Stay stopped while the engine idles in drive

9. The part shown is an engine timing belt. What is its main job?



A To drive the alternator, power steering pump, and air-conditioning compressor from the crank
B To transfer engine power from the transmission out to the drive axle and wheels
C To keep the camshaft in step with the crankshaft so the valves open at the right time
D To spin the starter motor until the engine fires and runs

10. If the part shown sticks in the open position, which problem is most likely?



A The engine quickly overheats in slow traffic and the coolant boils over
B The battery stops charging and the battery warning light comes on
C The engine warms up slowly and the heater blows only lukewarm air
D Oil leaks from the oil pan gasket

11. A front-wheel-drive car makes a rapid clicking or popping noise only when accelerating through sharp turns. What is the most likely cause?

A A low transmission fluid level
B Worn brake pads
C An unbalanced rear tire
D A worn outer CV joint

12. A front tire is worn much more on its inner edge than on the rest of the tread. Which problem is the most likely cause?

A Overinflation of the tire
B Underinflation of the tire
C A wheel that is out of balance
D Incorrect wheel alignment

13. An engine keeps losing coolant with no visible external leaks, and thick white exhaust smoke with a sweet smell comes out of the tailpipe. Which part has most likely failed?

A Head gasket
B Valve cover gasket
C Fuel pump
D Exhaust manifold

14. Why should loose clothing, jewelry and long hair be secured before using a drill press?

A They can block the operator's view of the measurements
B They can get caught in the spinning parts and pull the operator in
C They can cause the drill bit to dull more quickly
D They can build up static electricity that damages the drill press motor

15. Which striking tool is best for tapping wooden parts together without denting them?

A Steel ball-peen hammer
B Heavy steel sledgehammer
C Rubber or wooden mallet
D Framing claw hammer

16. The tool shown is a:



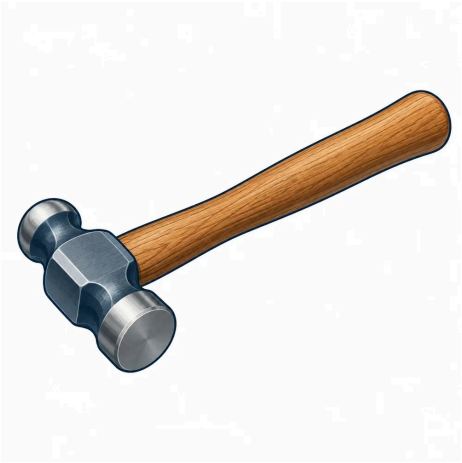
A slip-joint pliers
B locking pliers
C needle-nose pliers
D diagonal cutting pliers

17. The tool shown is used for:



A cutting thick steel plate and bar stock
B measuring electrical voltage and current in a circuit
C bending soft copper tubing
D joining electrical wires and components with solder

18. What is a ball-peen hammer mainly used for?



A Pulling bent nails out of boards with its claw
B Driving finish nails into trim and molding
C Shaping metal and striking punches and chisels
D Setting nails flush in drywall

19. A Class C fire extinguisher is designed for fires involving what?

A Energized electrical equipment
B Flammable liquids such as gasoline
C Combustible metals such as magnesium
D Ordinary combustibles such as wood and paper

20. When using the tool shown to smooth the edge of a steel bar, a worker should:



A press down firmly on both the forward and the return strokes for speed
B drag it back and forth rapidly with light, even pressure
C oil the teeth of the tool before every stroke
D apply pressure on the forward stroke and lift slightly on the return

21. A carpenter needs to cut a clean 2 1/8–inch round hole through a door for a lockset. Which tool is made for this job?

A A spade bit with a long shank in a drill
B A countersink bit in a drill
C A hole saw with a pilot bit in a drill
D A large twist drill bit in a drill

22. The fastener shown is a:



A lag screw
B machine screw
C carriage bolt
D hex bolt

23. On an inch micrometer, the sleeve shows the "3" line plus 3 more small divisions uncovered, and the thimble line aligned with the reading line is 12. What is the reading?

A 0.312 inch
B 0.362 inch
C 0.387 inch
D 0.412 inch

24. Besides checking 90-degree angles, the tool shown is commonly used to lay out lines at what other angle?



A 30 degrees
B 45 degrees
C 60 degrees
D 75 degrees

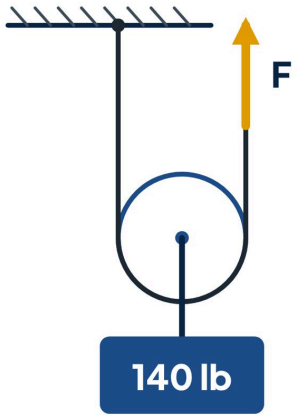
25. A woodworker smoothing a rough board by hand has 220-, 80- and 120-grit sandpaper. In what order should the sheets be used?

A 220, then 120, then 80
B 120, then 80, then 220
C Use only the 220, because it removes wood fastest
D 80, then 120, then 220

Part 8: Mechanical Comprehension (MC)

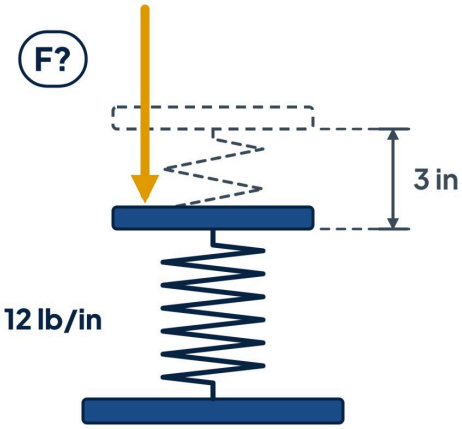
25 questions · 19 minutes

1. A 140-pound load hangs from a single movable pulley. One end of the rope is tied to a ceiling beam, and the worker pulls straight up on the other end, so two rope segments support the pulley. Ignoring friction and the pulley's weight, how much force must the worker apply?



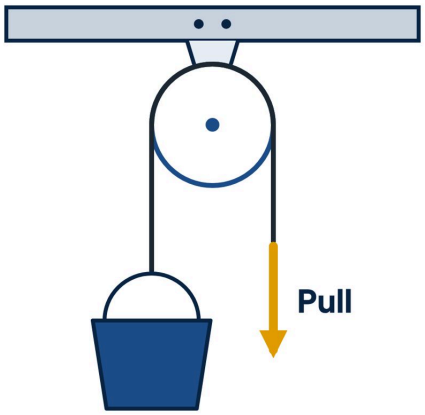
A 70 lb
B 140 lb
C 210 lb
D 280 lb

2. A spring has a spring constant of 12 pounds per inch. How much force is needed to compress it 3 inches?



A 4 lb
B 15 lb
C 36 lb
D 48 lb

3. A single pulley is bolted to a beam and does not move. A worker pulls down on one end of the rope to raise a bucket on the other end. Ignoring friction, what does this pulley do for the worker?

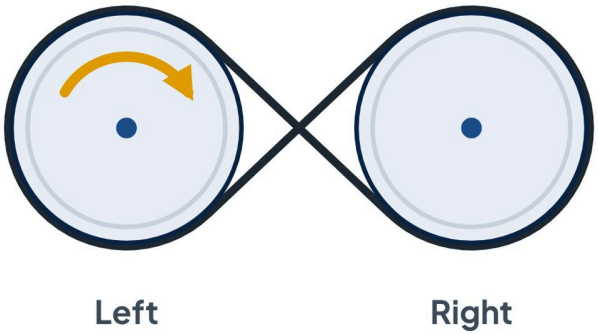


A It cuts the force needed to lift the bucket in half
B It doubles the distance the bucket rises for each pull
C It removes the weight of the bucket from the worker
D It only changes the direction of the force

4. A 200-pound force is applied evenly over an area of 4 square inches. What is the pressure?

A 25 psi
B 50 psi
C 100 psi
D 800 psi

5. Two pulleys are connected by a crossed belt (the belt forms an X between them). If the left pulley turns clockwise, which way does the right pulley turn?



A Counterclockwise
B Clockwise
C It does not turn
D Clockwise, but faster

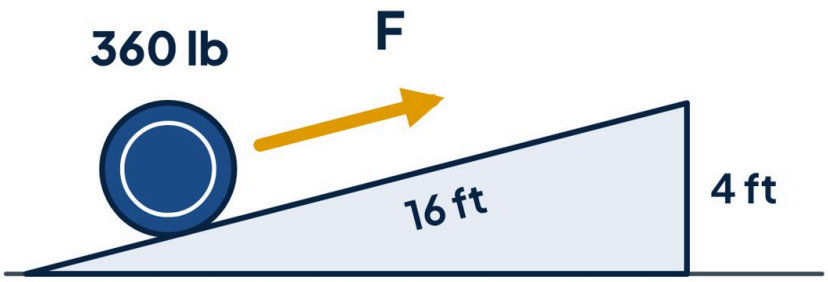
6. A pendulum swings back and forth. At what point in its swing is it moving fastest?

A At the highest point on either side
B Halfway between the lowest and highest points
C It moves at the same speed throughout
D At the lowest point of the swing

7. Builders use triangular bracing in bridge trusses and towers mainly because a triangle

A cannot change shape unless one of its sides changes length
B uses less material than any other shape
C has a lower center of gravity than a square
D carries loads only in tension

8. Movers roll a 360-pound barrel up a plank into a truck. The plank is 16 feet long, and the truck bed is 4 feet above the ground. Ignoring friction, what force along the plank keeps the barrel moving up?

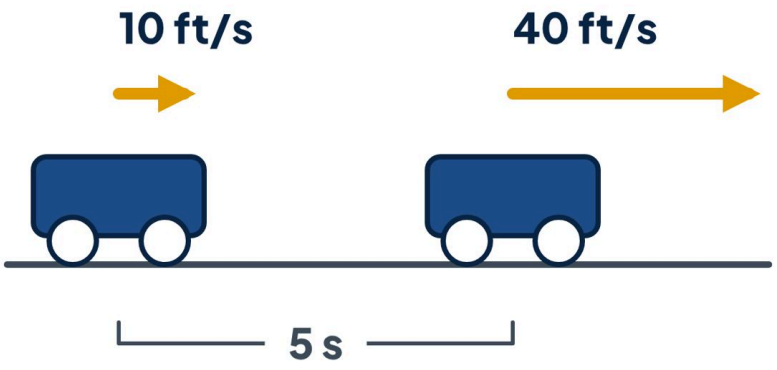


A 90 lb
B 120 lb
C 180 lb
D 360 lb

9. Why are small gaps left between sections of a concrete sidewalk or the deck of a steel bridge?

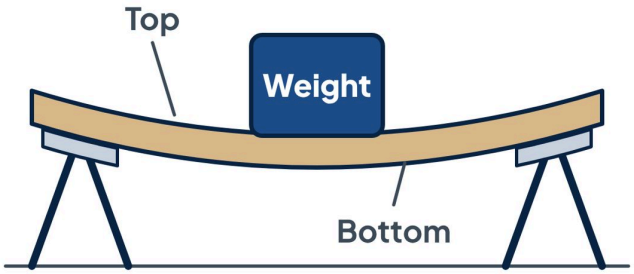
A To let rainwater drain through the gaps
B To give the material room to expand when it gets hot
C To make the surface easier to walk on
D To reduce the weight of the structure

10. A cart speeds up steadily from 10 feet per second to 40 feet per second in 5 seconds. What is its acceleration?



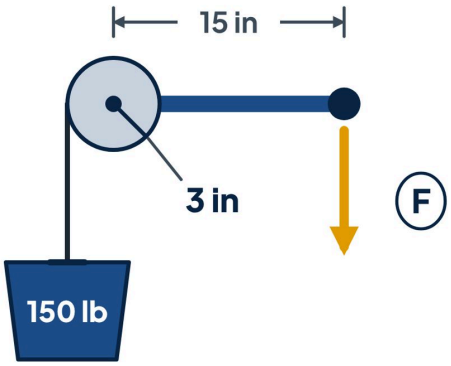
A 2 ft/s per second
B 6 ft/s per second
C 8 ft/s per second
D 10 ft/s per second

11. A wooden plank rests across two sawhorses, one at each end, and a heavy weight placed at its center makes it sag. Which describes the stresses in the plank?



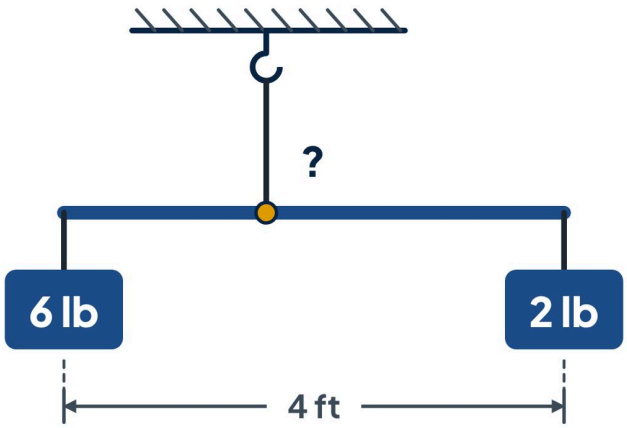
A The top and bottom are both in tension
B The top and bottom are both in compression
C The top is in tension and the bottom is in compression
D The top is in compression and the bottom is in tension

12. A well windlass has a crank handle 15 inches from the axle, and the rope winds on a drum 3 inches in radius. What force on the crank is needed to raise a 150–pound load of water?



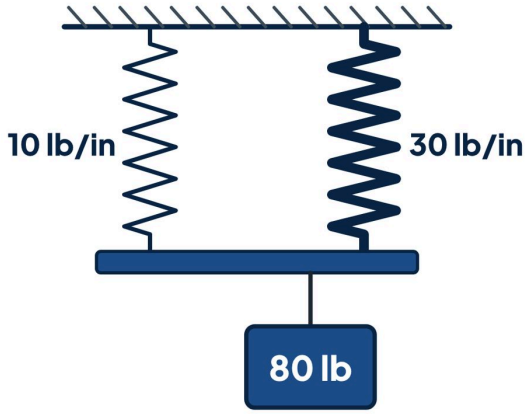
A 10 lb
B 15 lb
C 30 lb
D 50 lb

13. A light 4–foot rod hangs from a single string. A 6–pound weight hangs from the left end of the rod and a 2–pound weight hangs from the right end. How far from the left end must the string be tied so the rod hangs level? (Ignore the rod's weight.)



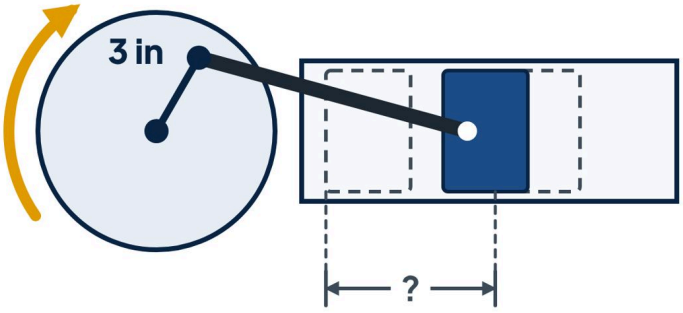
A 1 ft
B 1.33 ft
C 2 ft
D 3 ft

14. A rigid bar hangs level from two springs side by side: one with a constant of 10 pounds per inch and one with a constant of 30 pounds per inch. An 80-pound load is placed so the bar stays level. How far does the bar move down?



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

15. In a crank-and-slider mechanism, a crank arm 3 inches long (from the shaft center to the crank pin) drives a piston through a connecting rod. How far does the piston travel from one end of its stroke to the other?

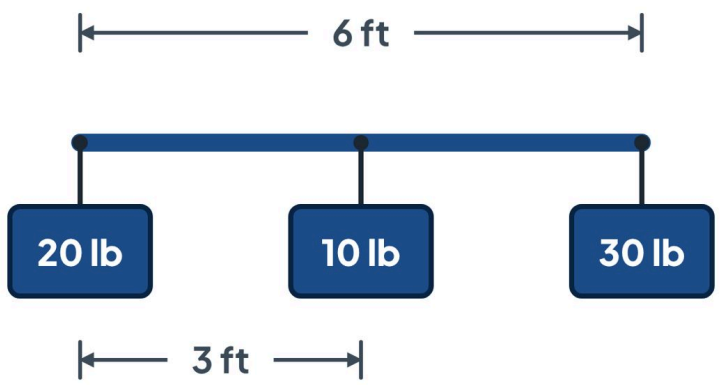


A 6 in
B 9 in
C 12 in
D 18.8 in

16. A net force of 30 newtons pushes a 6-kilogram cart. What is the cart's acceleration?

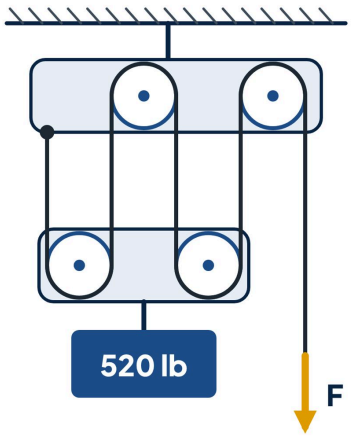
A 0.2 m/s^2
B 36 m/s^2
C 5 m/s^2
D 180 m/s^2

17. A light 6–foot rod has a 20–pound weight at its left end, a 10–pound weight at its middle (3 feet from the left end), and a 30–pound weight at its right end. How far from the left end is the center of gravity? (Ignore the rod's weight.)



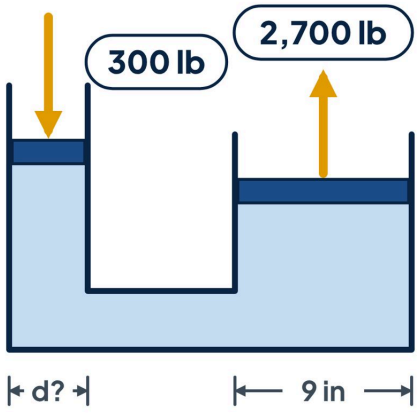
A 3 ft
B 3.5 ft
C 4 ft
D 4.5 ft

18. In the block and tackle shown, ignoring friction, what pull on the rope lifts a 520–pound load?



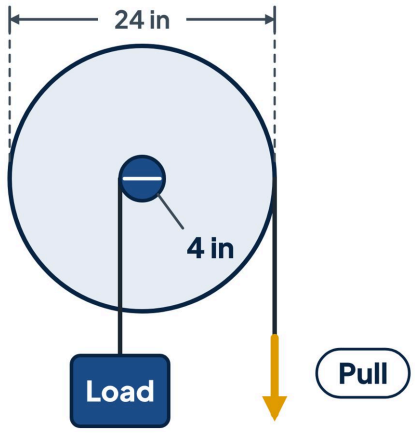
A 65 lb
B 87 lb
C 104 lb
D 130 lb

19. A hydraulic press must produce 2,700 pounds at its large piston, which is 9 inches in diameter, when 300 pounds is applied to the small piston. Ignoring friction, what diameter must the small piston have?



A 1 in
B 3 in
C 4.5 in
D 6 in

20. A wheel 24 inches in diameter is fixed to an axle 4 inches in diameter. A rope wound on the axle lifts a load, and a second rope wound on the wheel is pulled. To raise the load 3 feet, how much rope must be pulled off the wheel?

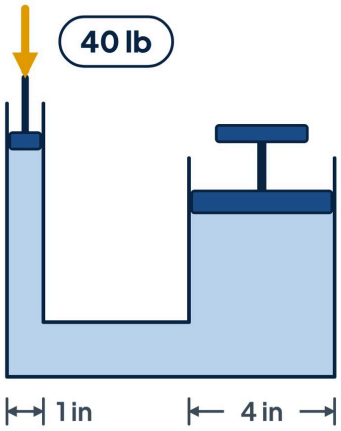


A 0.5 ft
B 6 ft
C 18 ft
D 36 ft

21. In a pulley system, pulling 30 feet of rope raises the load 5 feet. Ignoring friction, what effort is needed to lift a 900-pound load?

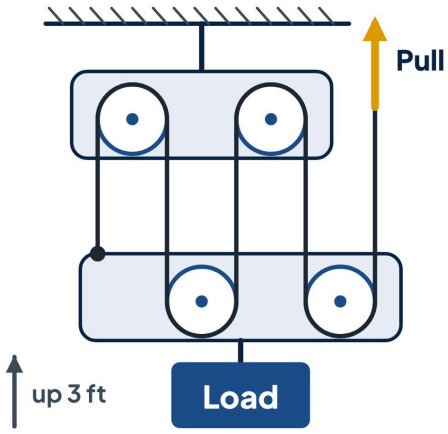
A 100 lb
B 150 lb
C 180 lb
D 300 lb

22. A hydraulic jack has a small piston 1 inch in diameter and a large piston 4 inches in diameter. If 40 pounds is applied to the small piston, what force does the large piston produce?



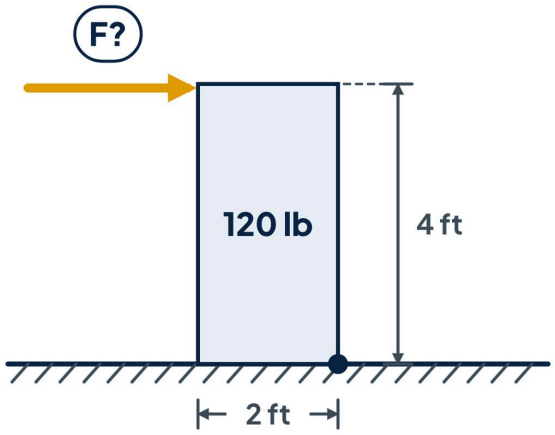
A 10 lb
B 160 lb
C 320 lb
D 640 lb

23. In the pulley system shown, the free end of the rope is pulled straight up. Ignoring friction, how much rope must be pulled to raise the load 3 feet?



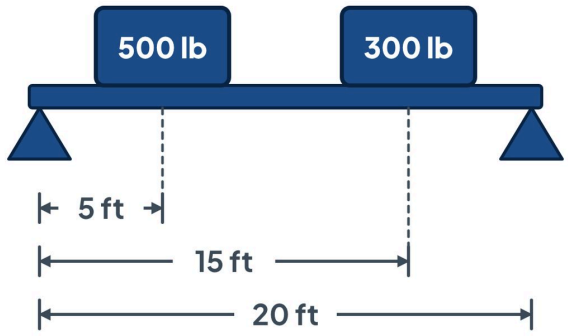
A 3 ft
B 9 ft
C 12 ft
D 15 ft

24. A uniform box weighs 120 pounds and is 2 feet wide and 4 feet tall. A horizontal push is applied at the top edge on its left side, and the box does not slide. What push will just start to tip it over its bottom right edge?



A 15 lb
B 30 lb
C 60 lb
D 120 lb

25. A 20-foot beam rests on a support at each end. A 500-pound load sits 5 feet from the left support and a 300-pound load sits 15 feet from the left support. Ignoring the beam's weight, how much force does the left support carry?

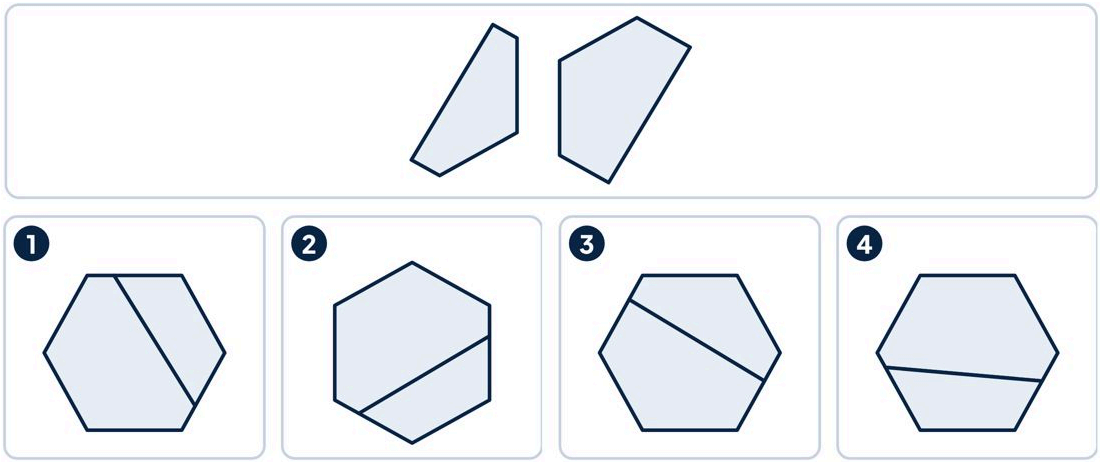


A 350 lb
B 400 lb
C 450 lb
D 500 lb

Part 9: Assembling Objects (AO)

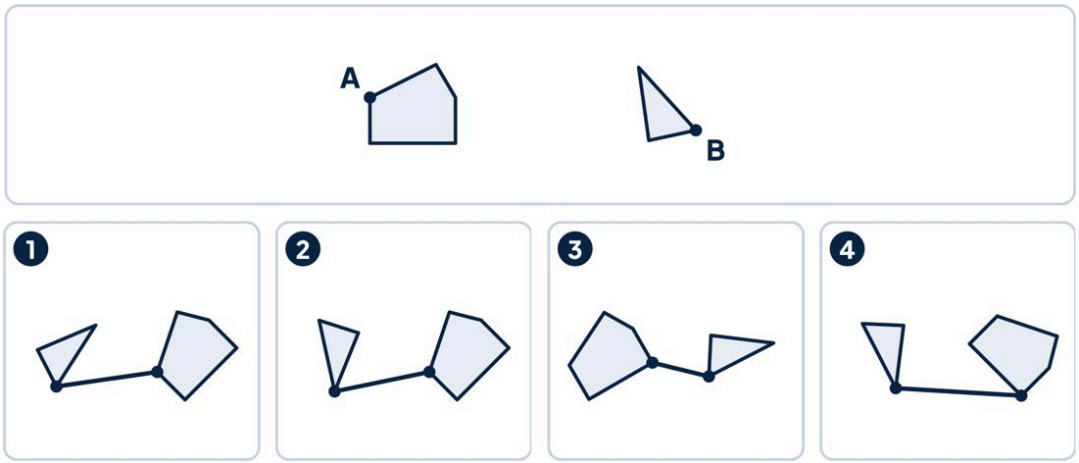
25 questions · 15 minutes

1. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



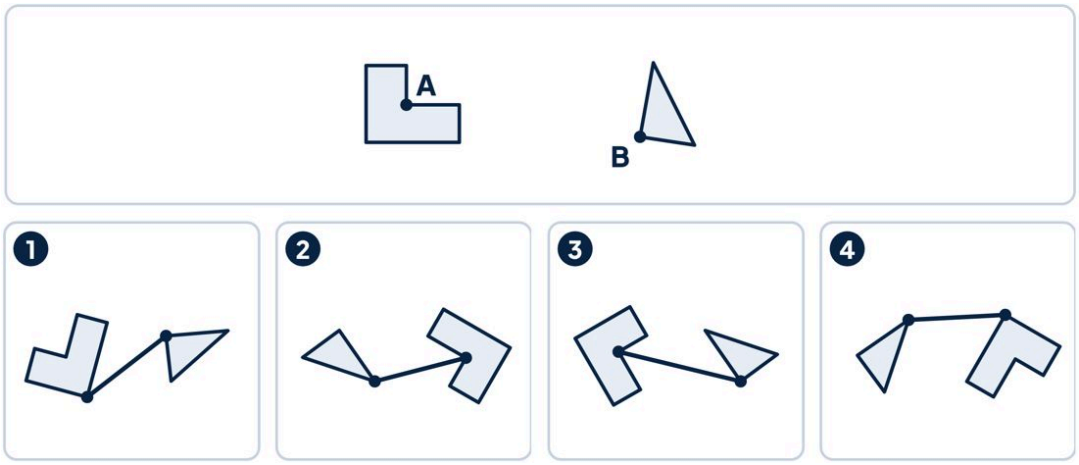
A Figure 1
B Figure 2
C Figure 3
D Figure 4

2. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



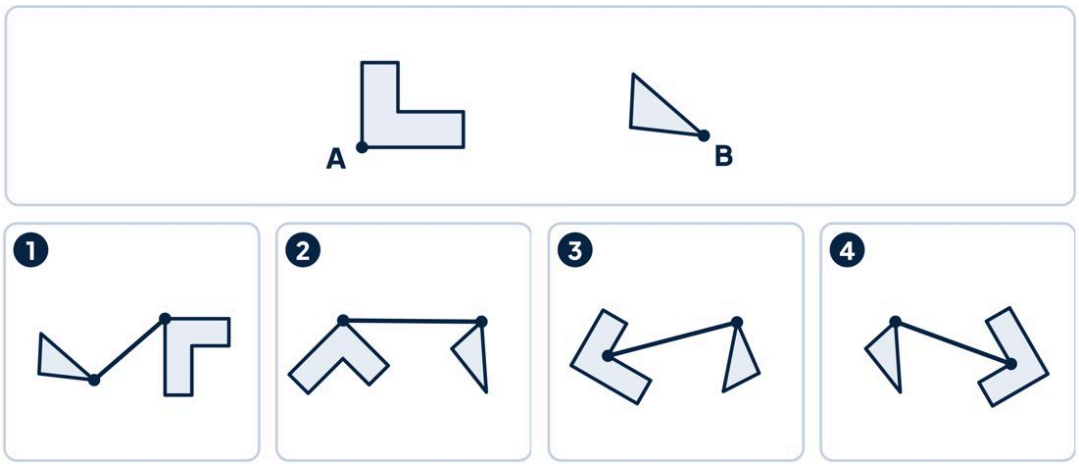
A Figure 1
B Figure 2
C Figure 3
D Figure 4

3. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



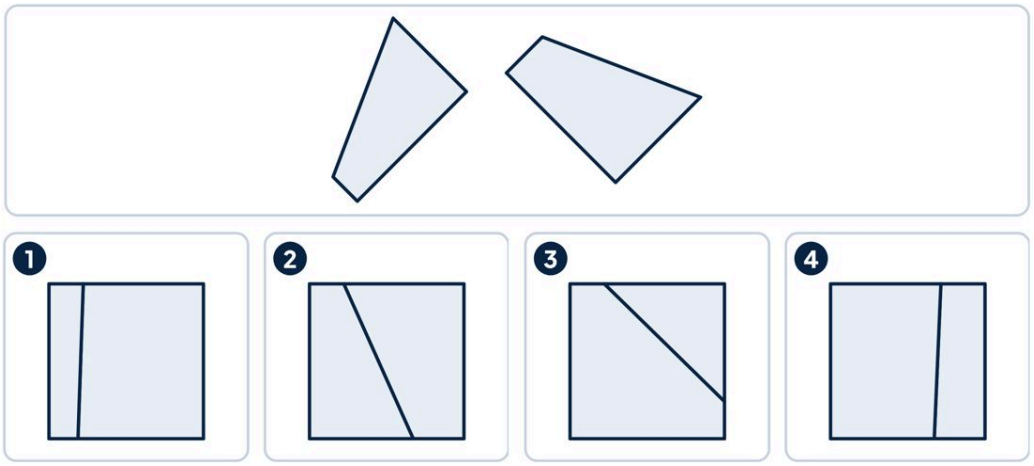
A Figure 1
B Figure 2
C Figure 3
D Figure 4

4. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



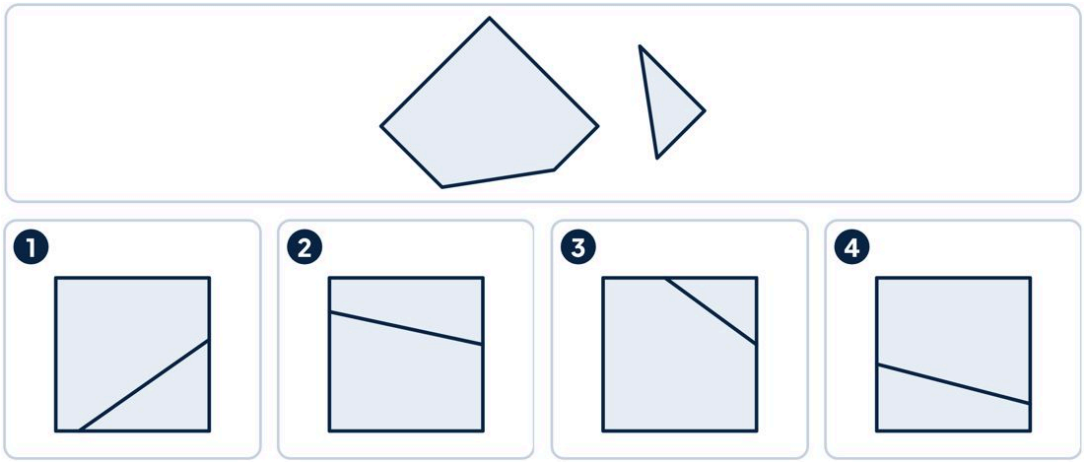
A Figure 1
B Figure 2
C Figure 3
D Figure 4

5. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



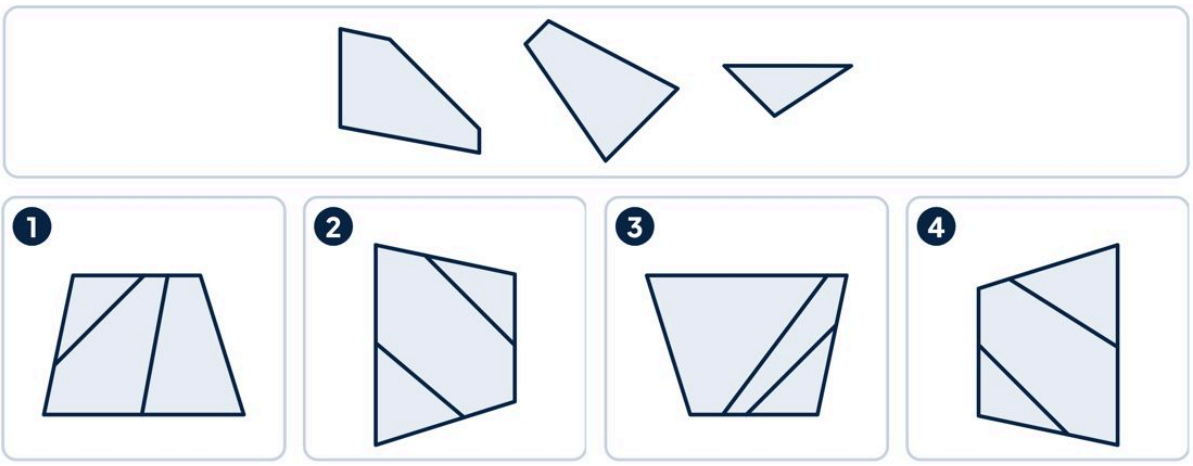
A Figure 1
B Figure 2
C Figure 3
D Figure 4

6. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



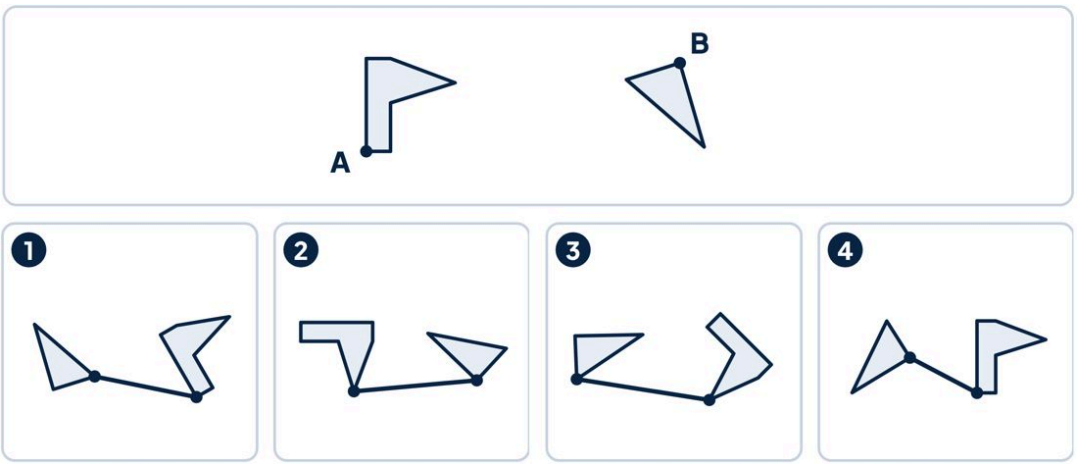
A Figure 1
B Figure 2
C Figure 3
D Figure 4

7. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



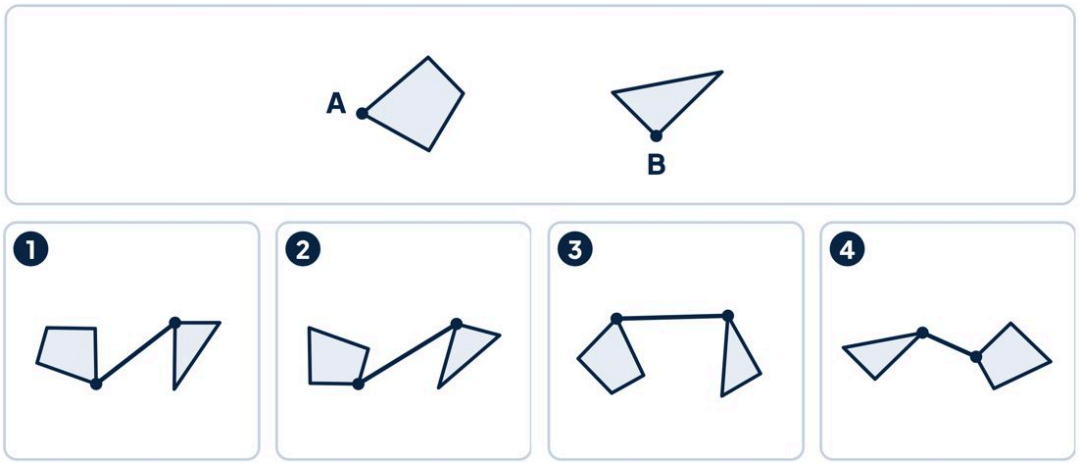
A Figure 1
B Figure 2
C Figure 3
D Figure 4

8. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



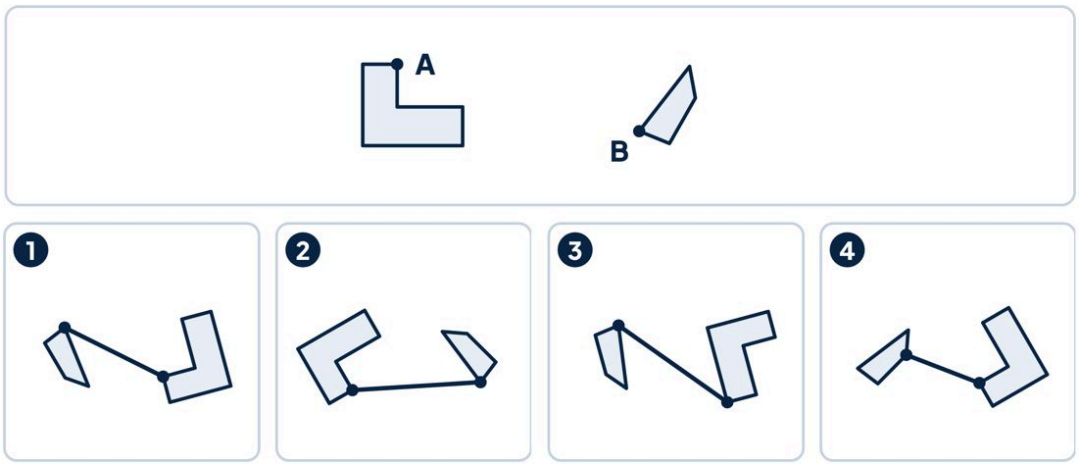
A Figure 1
B Figure 2
C Figure 3
D Figure 4

9. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



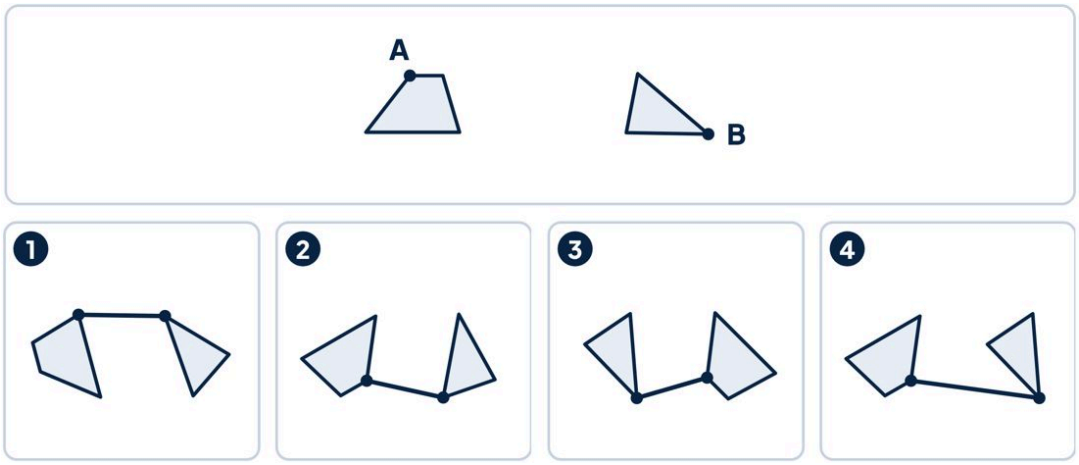
A Figure 1
B Figure 2
C Figure 3
D Figure 4

10. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



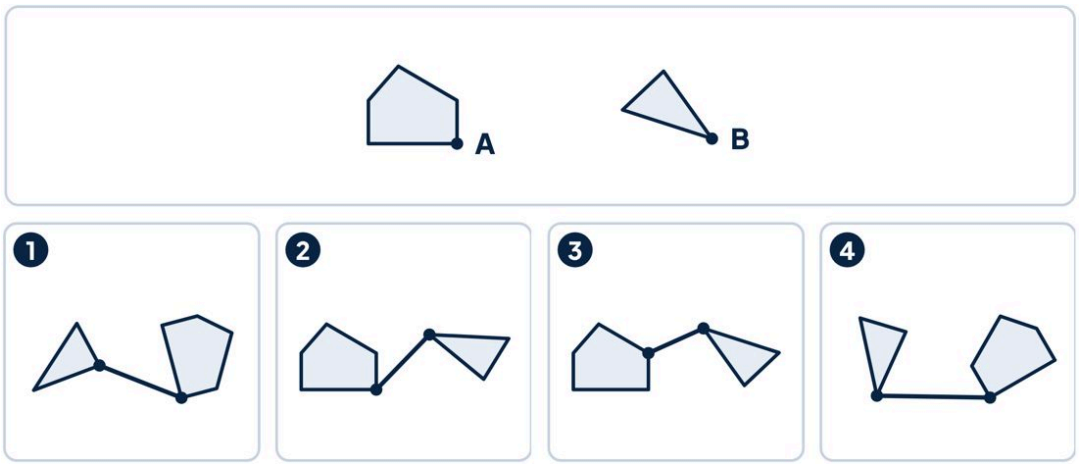
A Figure 1
B Figure 2
C Figure 3
D Figure 4

11. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



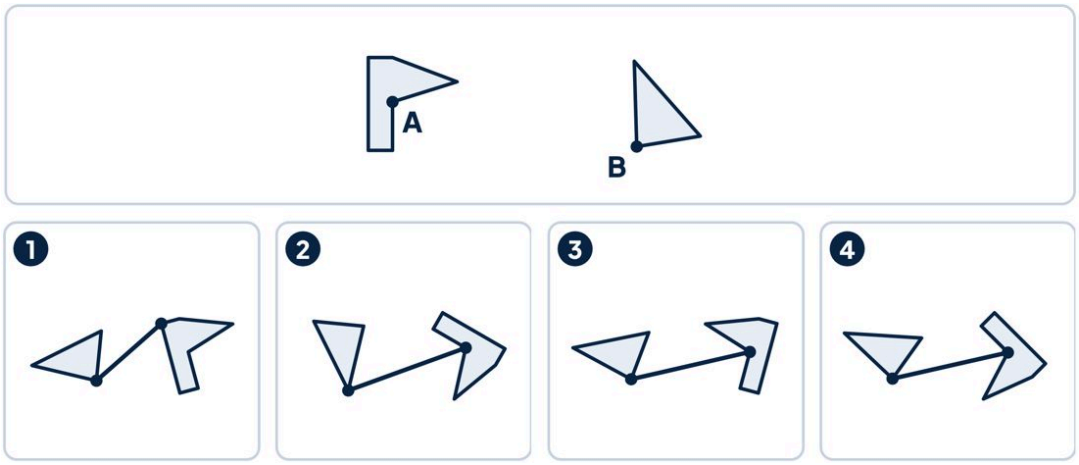
A Figure 1
B Figure 2
C Figure 3
D Figure 4

12. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



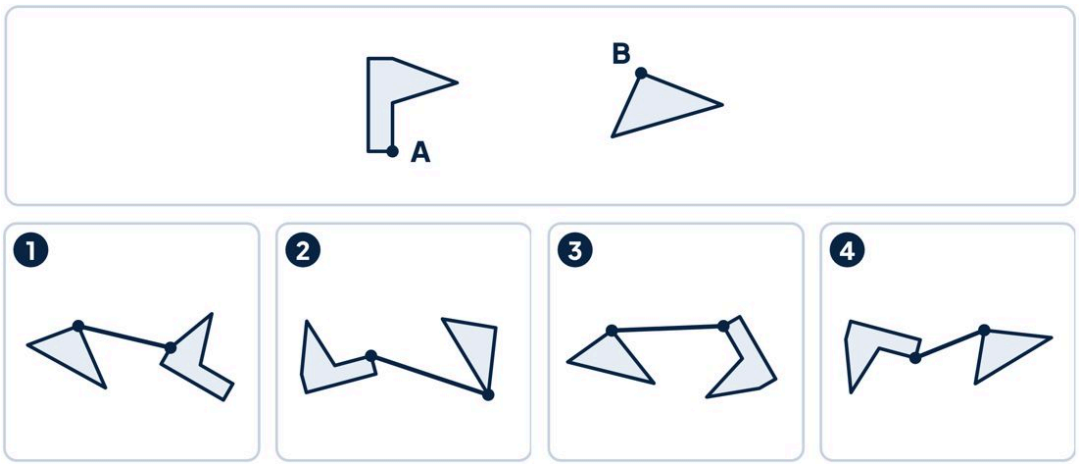
A Figure 1
B Figure 2
C Figure 3
D Figure 4

13. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



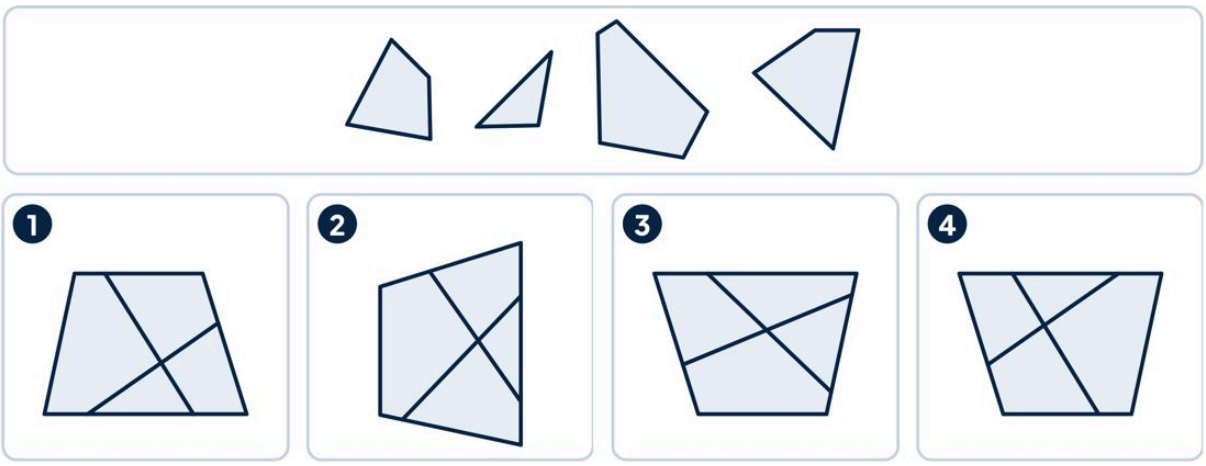
A Figure 1
B Figure 2
C Figure 3
D Figure 4

14. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



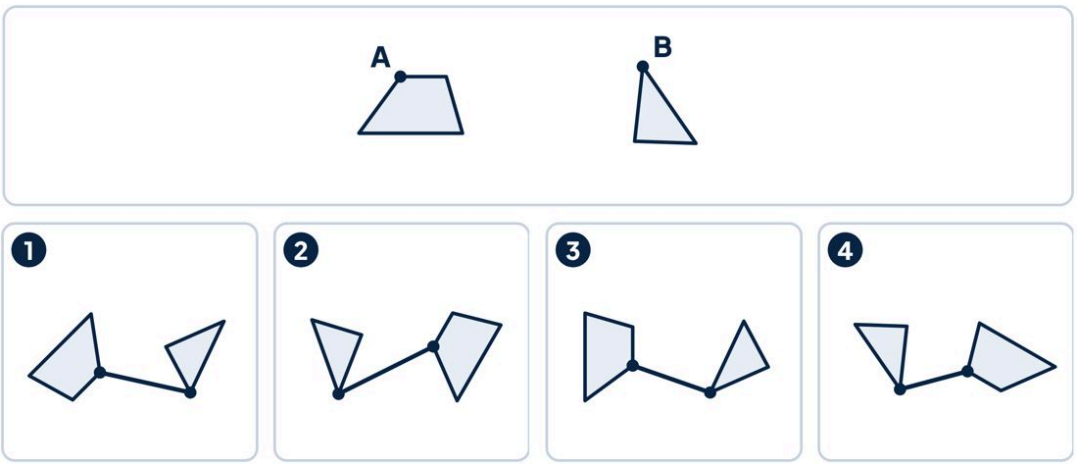
A Figure 1
B Figure 2
C Figure 3
D Figure 4

15. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



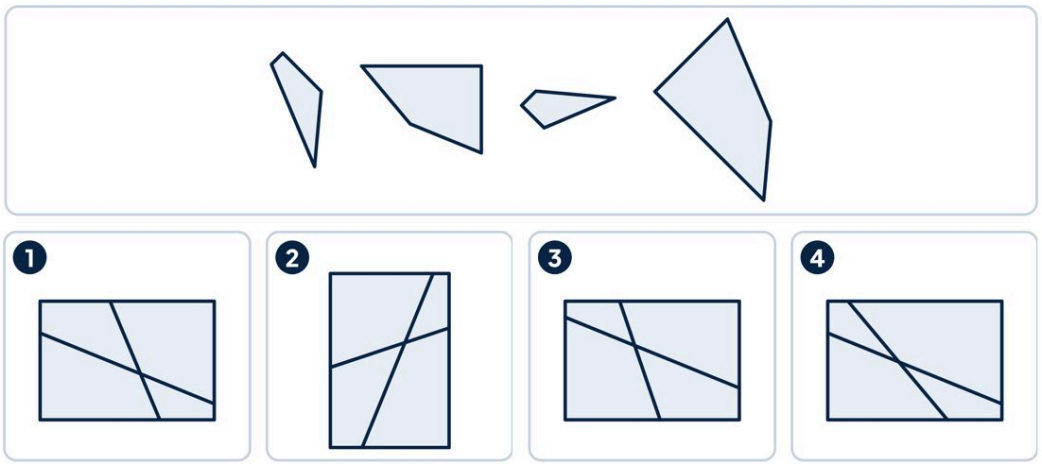
A Figure 1
B Figure 2
C Figure 3
D Figure 4

16. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



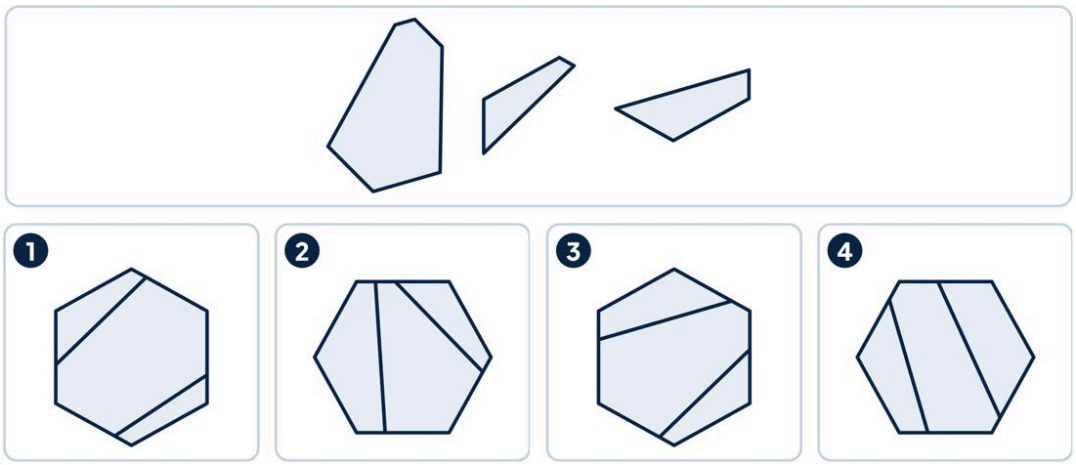
A Figure 1
B Figure 2
C Figure 3
D Figure 4

17. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



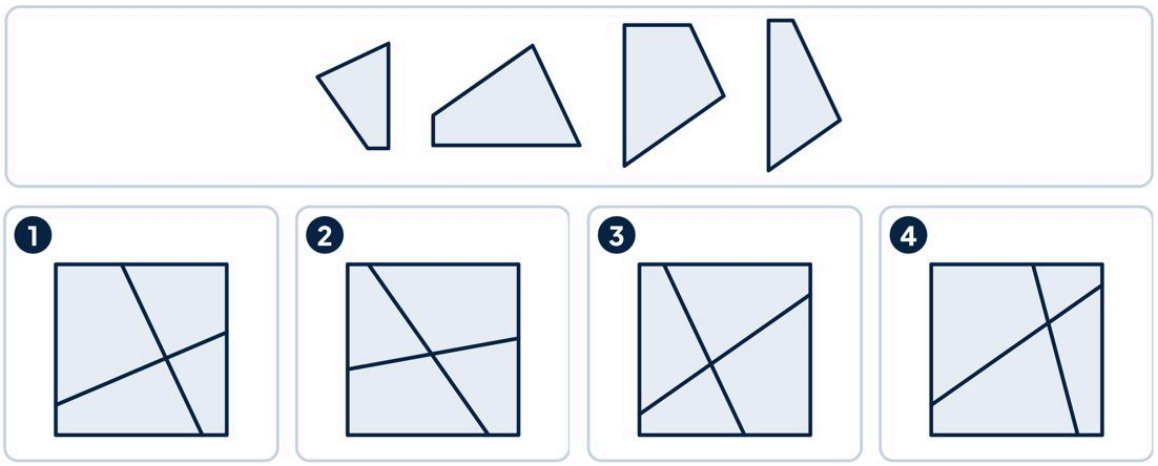
A Figure 1
B Figure 2
C Figure 3
D Figure 4

18. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



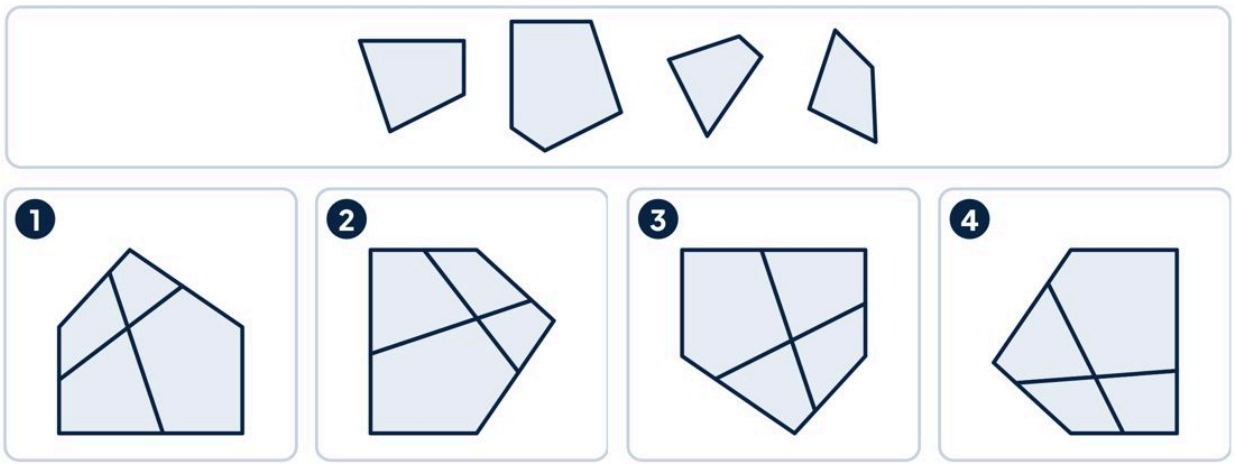
A Figure 1
B Figure 2
C Figure 3
D Figure 4

19. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



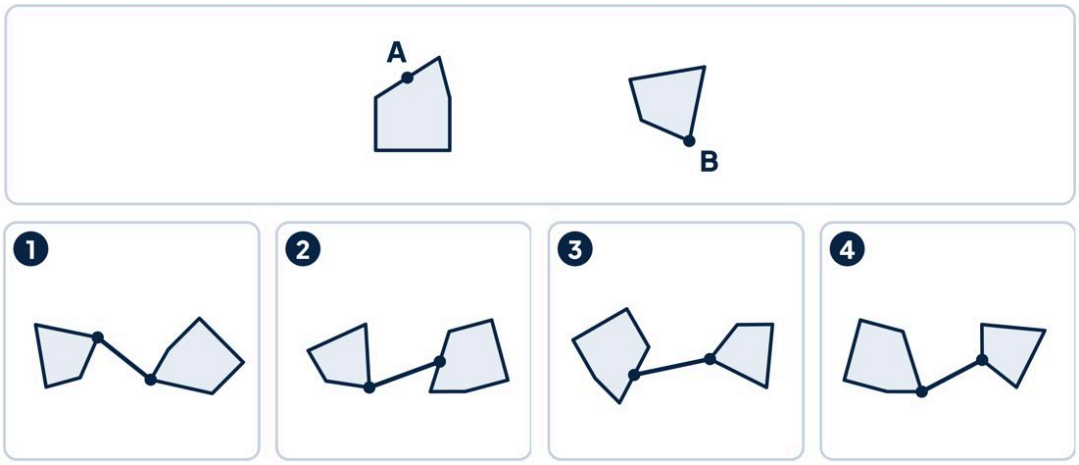
A Figure 1
B Figure 2
C Figure 3
D Figure 4

20. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



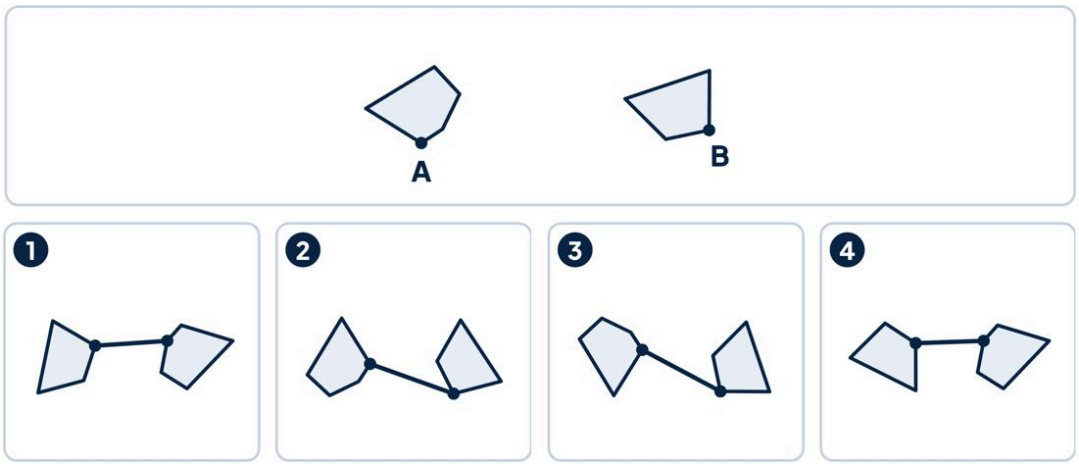
A Figure 1
B Figure 2
C Figure 3
D Figure 4

21. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



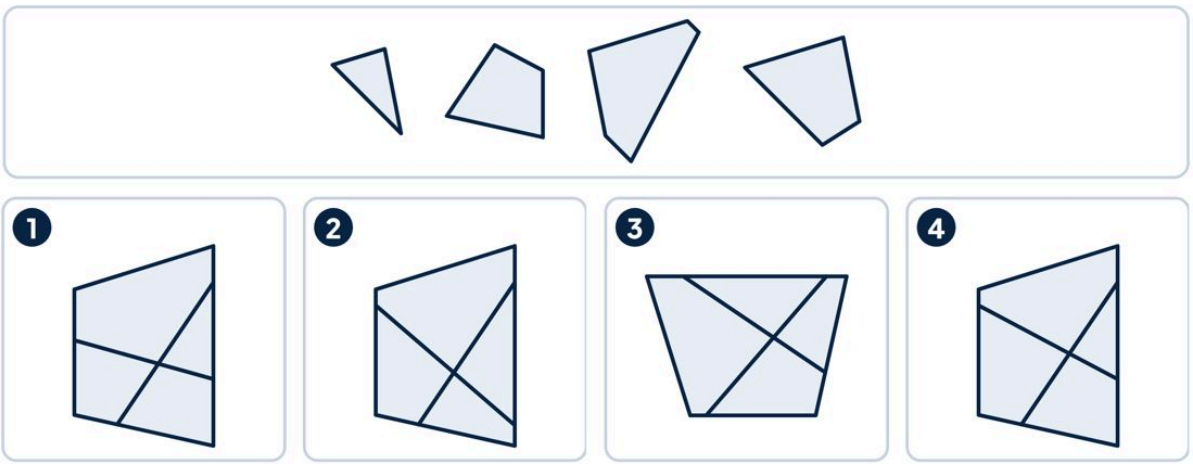
A Figure 1
B Figure 2
C Figure 3
D Figure 4

22. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



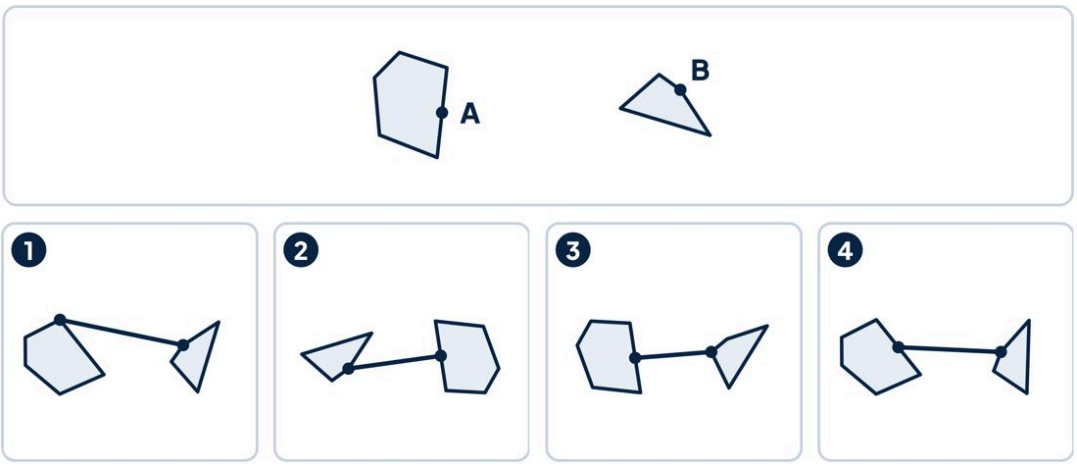
A Figure 1
B Figure 2
C Figure 3
D Figure 4

23. Which figure shows how the pieces in the top box fit together? The pieces may be turned, but not flipped over.



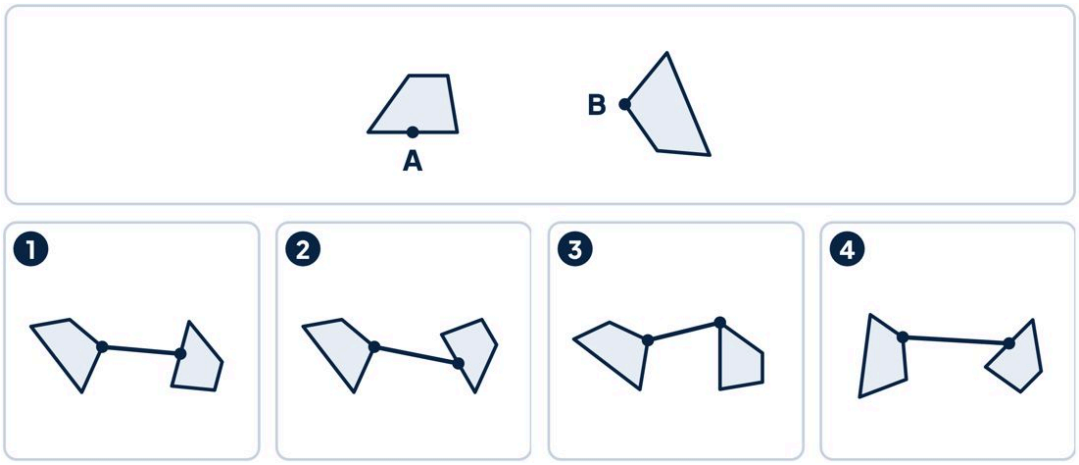
A Figure 1
B Figure 2
C Figure 3
D Figure 4

24. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



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

25. In the top box, point A on the first shape is to be joined to point B on the second shape with a straight line. Which figure shows the two shapes correctly joined? The shapes may be turned, but not flipped over.



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

Answer key

Score one point per correct answer. Check your misses, then study those topics at asvabtutor.com.

General Science (GS)

1. **B**	2. **D**	3. **D**	4. **B**	5. **A**	6. **A**	7. **C**	8. **D**	9. **C**	10. **A**
11. **B**	12. **B**	13. **B**	14. **D**	15. **A**	16. **A**	17. **C**	18. **C**	19. **A**	20. **B**
21. **B**	22. **B**	23. **D**	24. **B**	25. **D**					

Arithmetic Reasoning (AR)

1. **D**	2. **D**	3. **A**	4. **C**	5. **A**	6. **D**	7. **B**	8. **D**	9. **D**	10. **D**
11. **B**	12. **A**	13. **B**	14. **A**	15. **A**	16. **B**	17. **C**	18. **B**	19. **B**	20. **B**
21. **C**	22. **D**	23. **A**	24. **C**	25. **C**	26. **D**	27. **B**	28. **C**	29. **B**	30. **A**

Word Knowledge (WK)

1. **C**	2. **C**	3. **D**	4. **D**	5. **D**	6. **B**	7. **D**	8. **A**	9. **A**	10. **C**
11. **D**	12. **B**	13. **D**	14. **D**	15. **C**	16. **C**	17. **C**	18. **A**	19. **B**	20. **B**
21. **B**	22. **D**	23. **D**	24. **B**	25. **C**	26. **C**	27. **C**	28. **C**	29. **C**	30. **C**
31. **A**	32. **B**	33. **C**	34. **D**	35. **A**					

Paragraph Comprehension (PC)

1. **D**	2. **B**	3. **B**	4. **B**	5. **A**	6. **B**	7. **B**	8. **B**	9. **A**	10. **D**
11. **B**	12. **B**	13. **C**	14. **D**	15. **D**					

Mathematics Knowledge (MK)

1. **C**	2. **B**	3. **D**	4. **B**	5. **D**	6. **A**	7. **B**	8. **B**	9. **A**	10. **B**
11. **A**	12. **A**	13. **C**	14. **C**	15. **A**	16. **A**	17. **C**	18. **B**	19. **D**	20. **C**
21. **A**	22. **A**	23. **C**	24. **D**	25. **D**					

Electronics Information (EI)

1. **D**	2. **A**	3. **A**	4. **B**	5. **C**	6. **C**	7. **C**	8. **B**	9. **B**	10. **D**
11. **D**	12. **C**	13. **A**	14. **D**	15. **A**	16. **A**	17. **B**	18. **C**	19. **C**	20. **C**

Auto and Shop Information (AS)

1. **A**	2. **C**	3. **D**	4. **B**	5. **D**	6. **A**	7. **C**	8. **C**	9. **C**	10. **C**
11. **D**	12. **D**	13. **A**	14. **B**	15. **C**	16. **B**	17. **D**	18. **C**	19. **A**	20. **D**
21. **C**	22. **C**	23. **C**	24. **B**	25. **D**					

Mechanical Comprehension (MC)

1. **A**	2. **C**	3. **D**	4. **B**	5. **A**	6. **D**	7. **A**	8. **A**	9. **B**	10. **B**
11. **D**	12. **C**	13. **A**	14. **B**	15. **A**	16. **C**	17. **B**	18. **D**	19. **B**	20. **C**
21. **B**	22. **D**	23. **D**	24. **B**	25. **C**					

Assembling Objects (AO)

1. **C**	2. **A**	3. **C**	4. **A**	5. **B**	6. **C**	7. **A**	8. **D**	9. **A**	10. **A**
11. **D**	12. **B**	13. **D**	14. **C**	15. **B**	16. **B**	17. **D**	18. **C**	19. **C**	20. **C**
21. **C**	22. **C**	23. **D**	24. **D**	25. **A**					