Vendor:ASVAB

Exam Code:ASVAB-SECTION-3

Exam Name:ASVAB Section Three : Mechanical Comprehension

Version: Demo

QUESTION 1

What is the definition of a "concurrent force"?

A. A force system requiring concurrent movement.

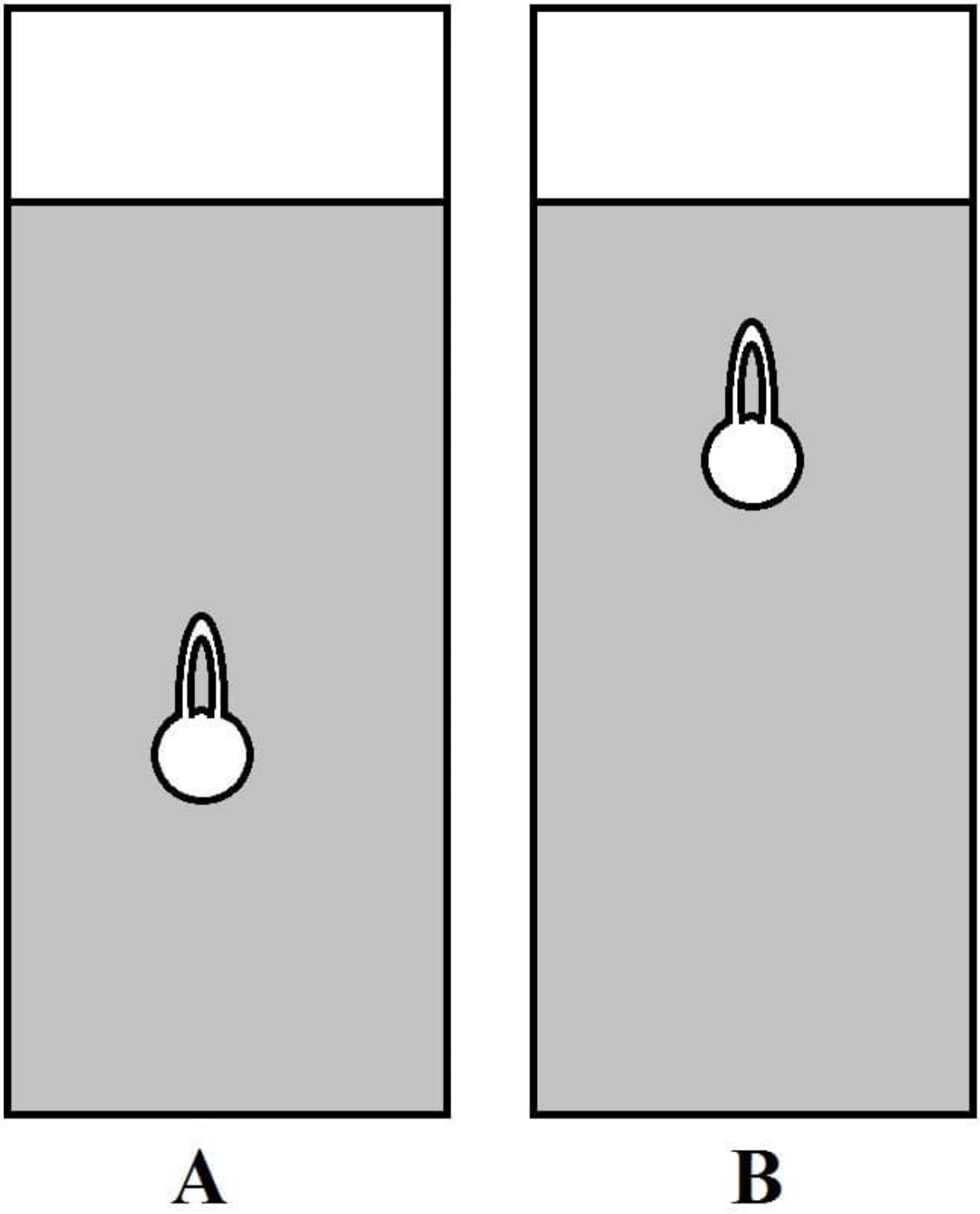
B. A force system described as having multiple sources of force.

C. A system requiring all systems to pass through the same point.

D. A series of forces requiring simultaneous movement.

Correct Answer: C

QUESTION 2



The floats in Tubes A and B measure specific gravity.

Which tube contains the liquid with the higher specific gravity?

A. Tube A

B. Tube B

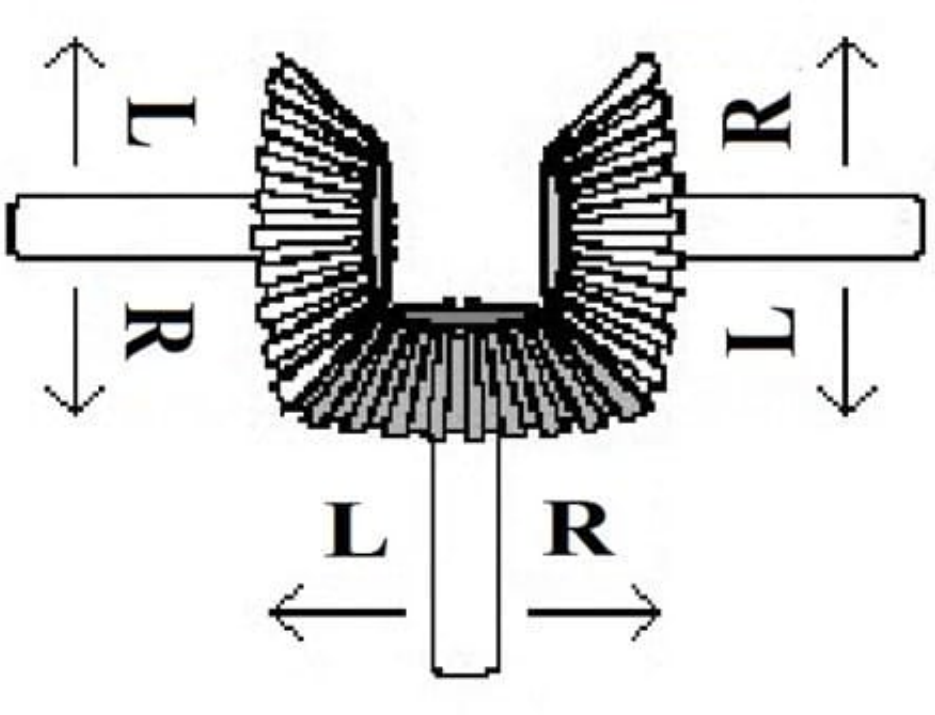
C. It can\\'t be determined.

D. Both Tube A and Tube B have the same specific gravity.

Correct Answer: B

Specific gravity is a comparison between the weight of a liquid and the weight of water. The liquid with the higher specific gravity will have a float that rises higher.

QUESTION 3



If Gear A is turned to the left _____.

A. Gear B turns to the right and Gear C turns to the left.

B. Gear B turns to the left and Gear C turns to the left.

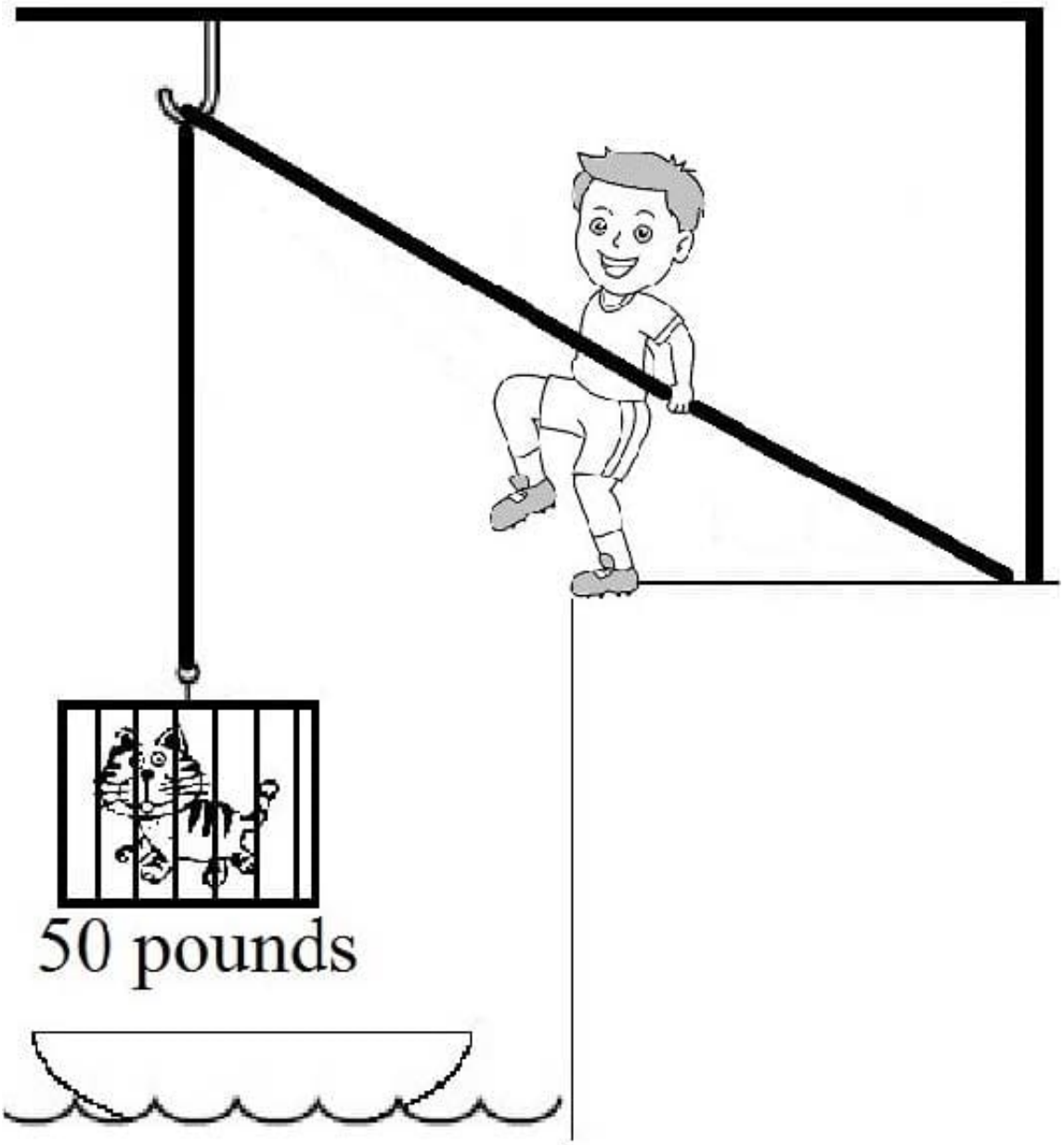
C. Gear B turns to the right and Gear C turns to the right.

D. Gear B turns to the left and Gear C turns to the right.

Correct Answer: A

Gears with their teeth together in mesh turn in opposite directions. Gear A turns Gear B in the opposite direction (right), and Gear B turns Gear C in the opposite direction (left).

QUESTION 4



A runner is being used in the figure shown.

How much effort (disregard friction, wind resistance, and the weight of the pulley and the rope) is using the cat lover lifting the 50-pound crate (with cat)?

A. 50-pound effort

B. 100-pound effort

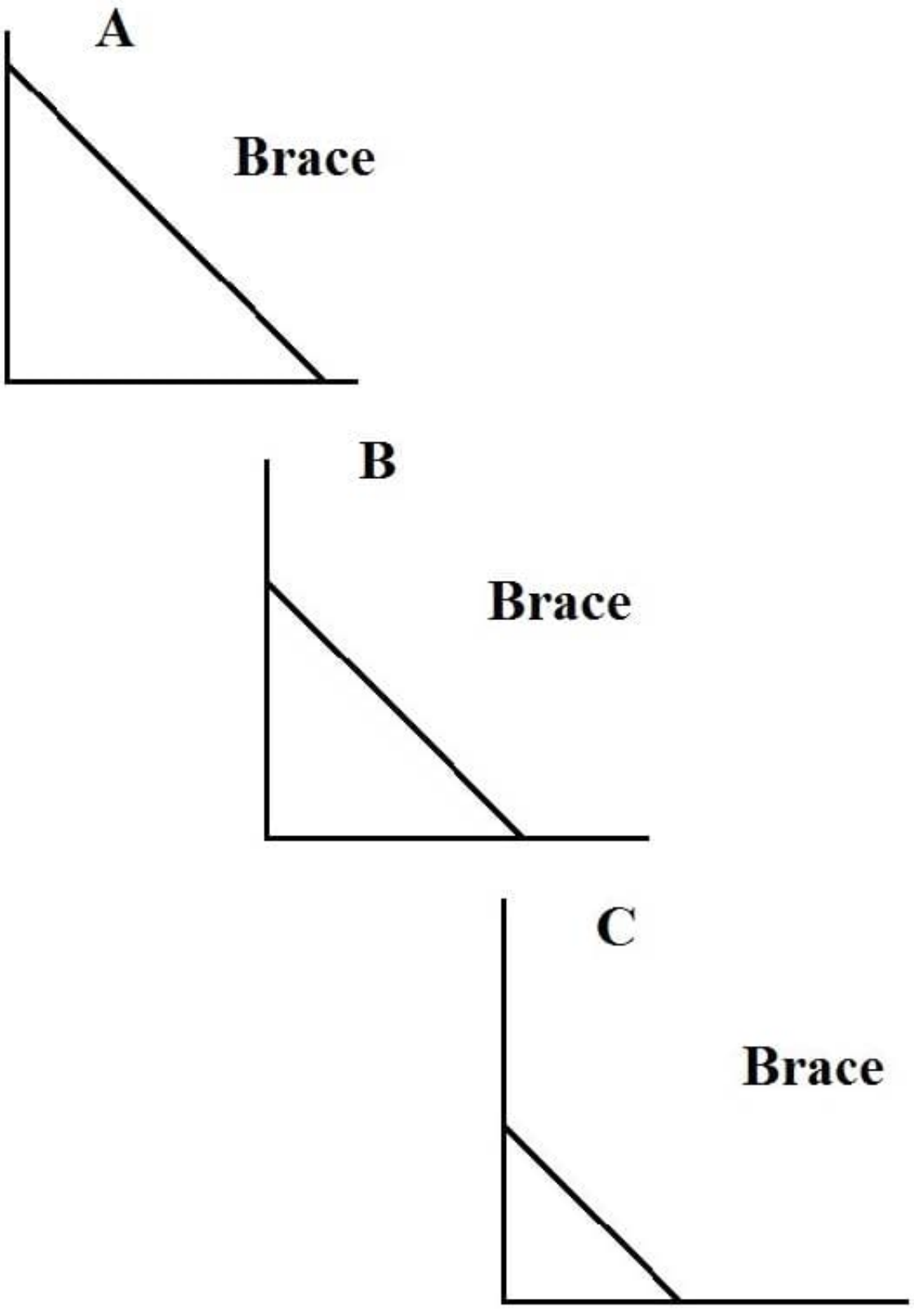
C. 25-pound effort

D. 10-pound effort

Correct Answer: A

Stationary pulleys give no mechanical advantage, so effort equals the weight of the crate or 50 pounds.

QUESTION 5



In the figure above, which angle is braced most solidly?

A. A

B. B

C. C

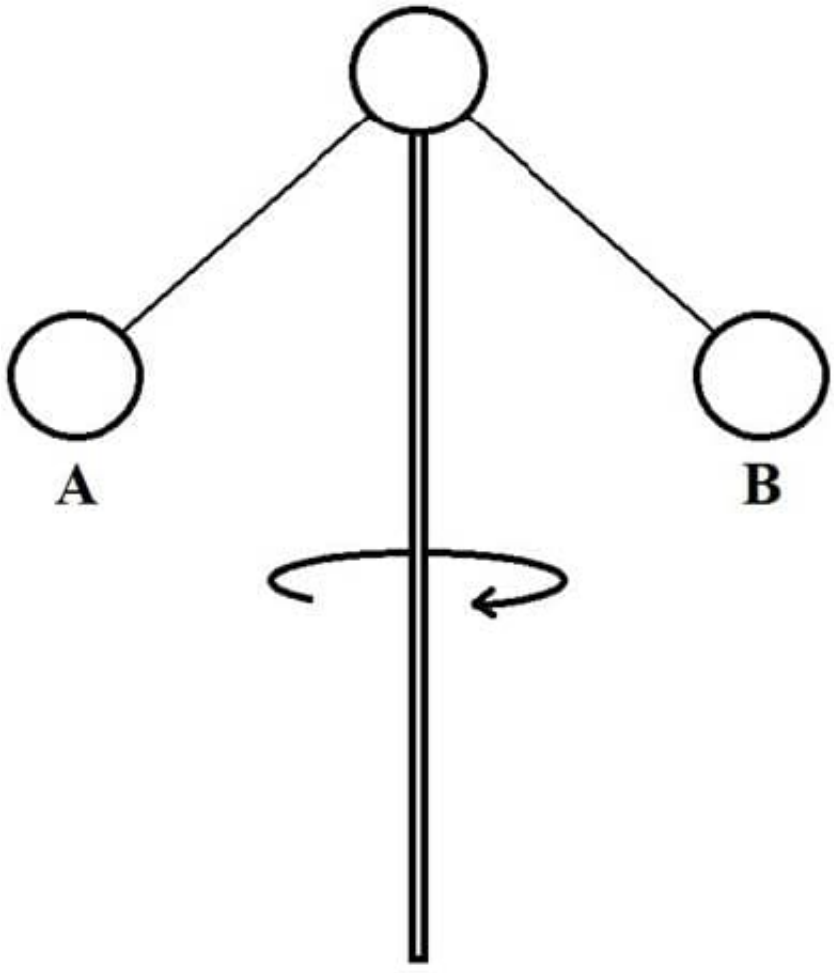
D. All are braced equally solidly.

Correct Answer: A

The brace on Angle A covers more area of the angle, so it\\'s more solidly braced.

QUESTION 6

As the central shaft in the illustration below spins faster in a clockwise direction, the balls labeled A and B will _____.



A. move outward and downward

B. move outward and upward

C. move up

D. move down

Correct Answer: B

Centrifugal force from the spinning shaft, regardless of direction, will cause the balls to move outward, away from the shaft; the tension on the strings holding them will result in the balls moving upward.

QUESTION 7

Which of the following is not a simple machine?

A. Lever

B. Inclined plane

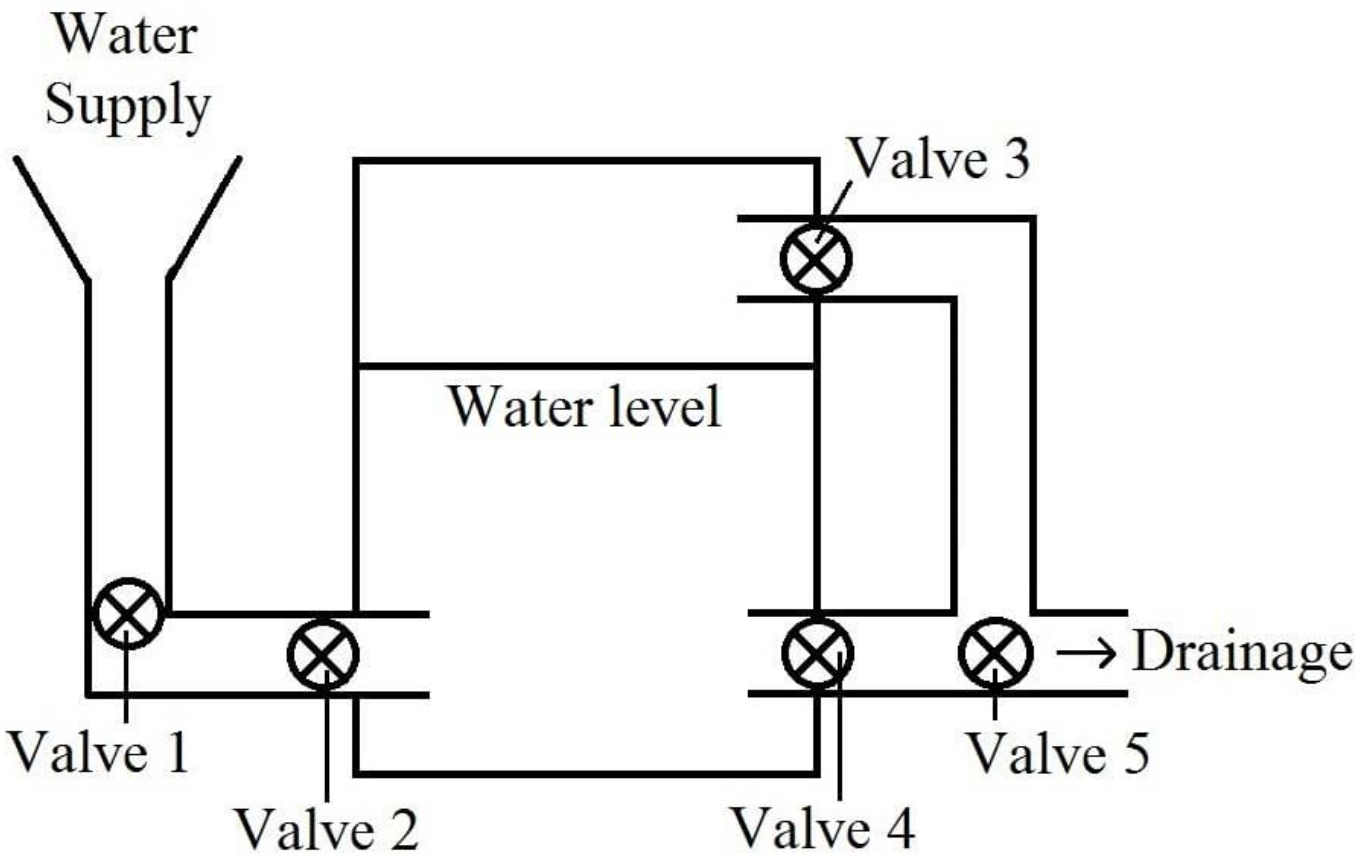
C. Axe

D. Pulley

Correct Answer: C

An axe is a compound machine: the handle is a lever, and the head is two inclined planes (each side of the blade edge).

QUESTION 8



The figure above represents a water tank. Which of the following statements is not true?

A. If Valves 1 and 2 are open and Valves 3, 4, and 5 are closed, the tank will eventually overflow.

B. If all valves are open, the water remains at a constant level as long as the rate of intake is equal to the rate of discharge.

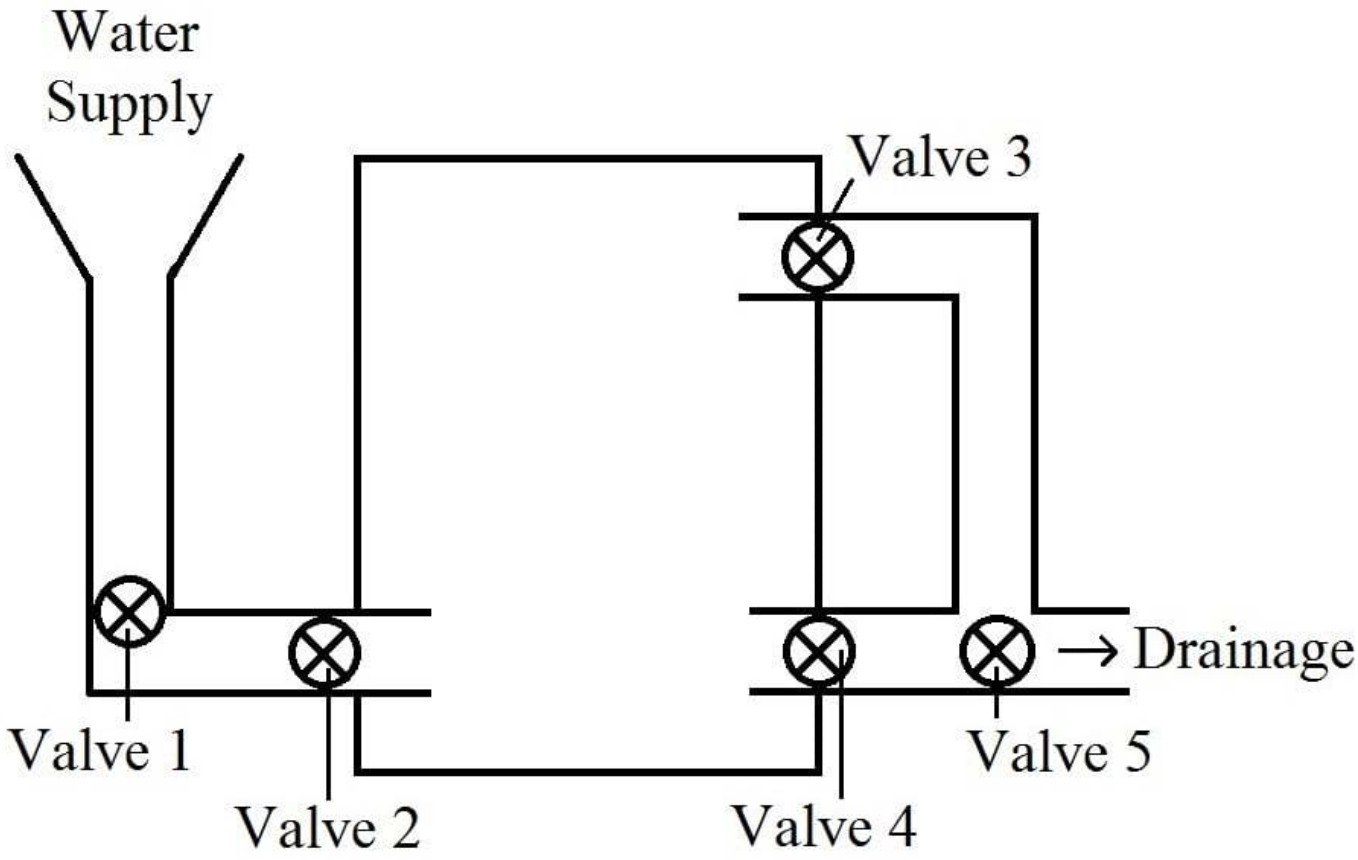
C. Water in the tank will rise if Valves 1 and 2 are open and Valves 3 and 4 are closed.

D. The tank will empty entirely if Valves 1 and 2 are closed and Valves 4 and 5 are open.

Correct Answer: D

Because Valve 4 is above the bottom of the tank, some water will remain in the tank below the level of the valve, so the tank will never be completely empty.

QUESTION 9



In the figure above, assume the valves are all closed. Which valves need to be open to fill the tank entirely?

A. 1 and 2 only

B. 1 only

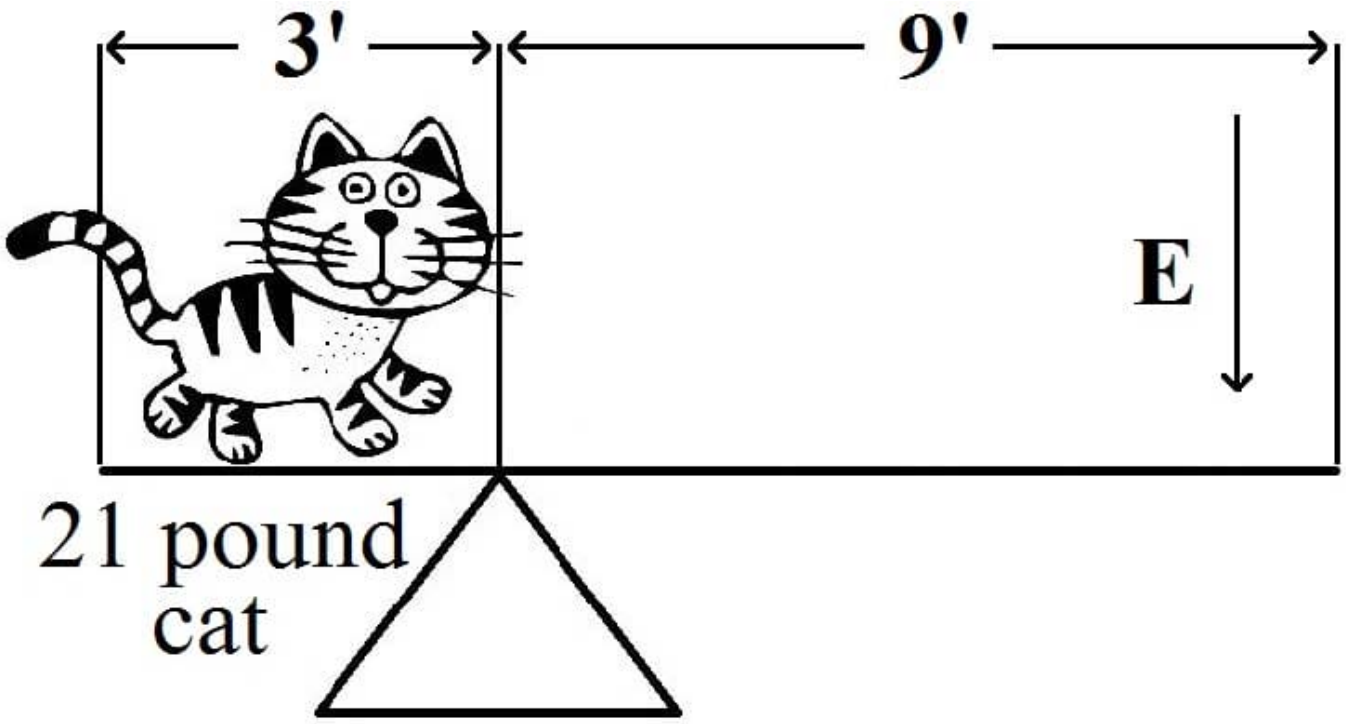
C. 1, 2, and 3

D. 2 only

Correct Answer: A

Valves 1 and 2 need to be open to fill the tank.

QUESTION 10



In the figure shown above, what effort E must be applied to lift the cat?

A. 7.0 pounds

B. 9.0 pounds

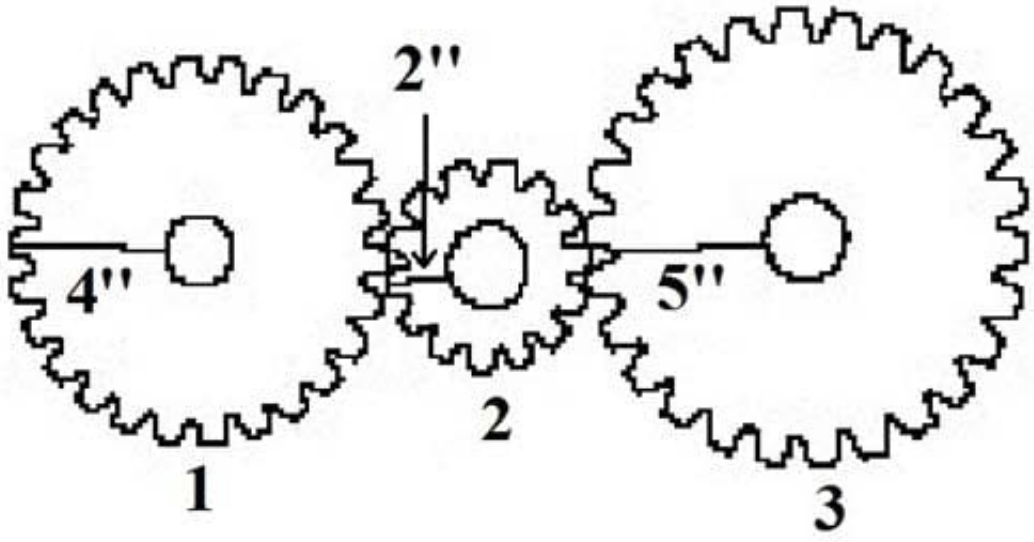
C. 21.0 pounds

D. 10.5 pounds

Correct Answer: A

Apply the leverage formula: Length of Effort Arm divided by Length of Resistance Arm = Resistance Force divided by Effort Force. Or: 9 ÷ 3 = 21 ÷ E (effort force) 3 = 21 ÷ E 3E = 21 ÷ E × E 3E = 21 3E ÷ 3 = 21 ÷ 3 E = 7

QUESTION 11



If Gear 1 makes 10 complete clockwise revolutions per minute in the figure above, then _____.

A. Gear 2 makes 10 complete clockwise revolutions per minute.

B. Gear 2 makes 20 complete counterclockwise revolutions per minute.

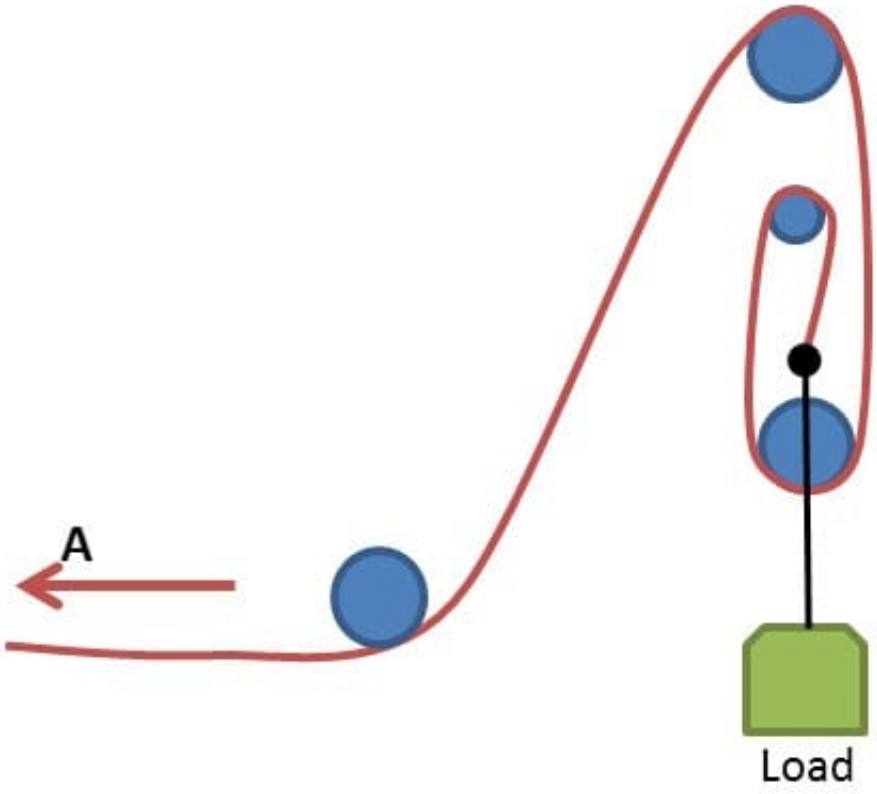
C. Gear 2 makes 5 complete counterclockwise revolutions per minute.

D. Gear 3 keeps Gear 2 from making any revolutions.

Correct Answer: B

If Gear 1 turns at 10 rpm, then Gear 2, which is half the size, turns twice as fast at a rate of 20 rpm.

QUESTION 12



Pulling on the rope at point A will lift the load.

How far will you have to pull the rope at point A to lift the load 15 feet?

A. 15 feet

B. 45 feet

C. 30 feet

D. 60 feet

Correct Answer: B

The mechanical advantage of the pulley is 3 since there are three ropes supporting the load. Therefore, the distance at point A needs to 3x or 3 × 15 = 45 ft.