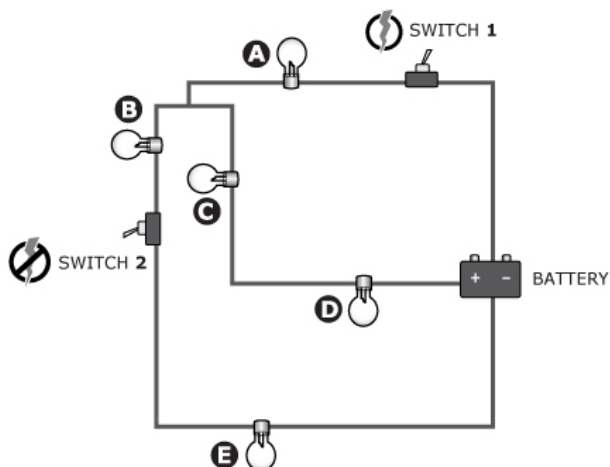


Mechanical Reasoning Test

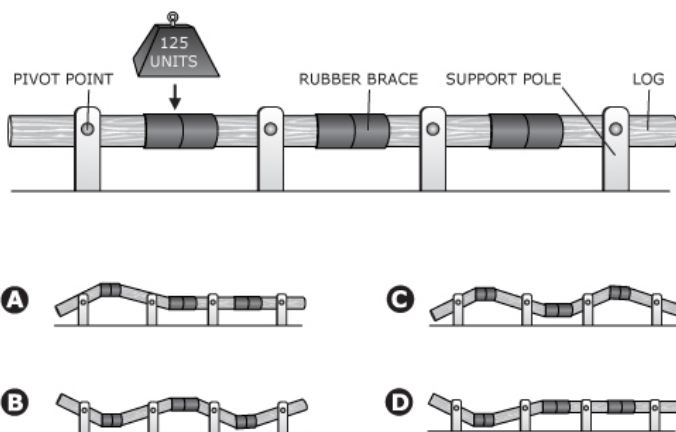
Question 1



In the electrical circuit above, which light bulbs should be lit if Switch 1 is on and Switch 2 is off?

- a) All should be off.
- b) All should be on.
- c) A, C & D should be on.
- d) A, B, C & D should be on.

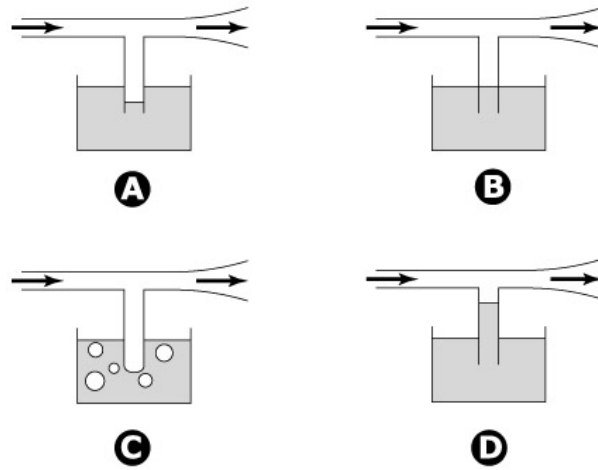
Question 2



The image is of a series of logs held together by support poles (each with a pivot point) and by rubber braces which flex and bend. Which image would be the most likely result if the weight is placed on the rubber brace as pictured?

- a) A
- b) B
- c) C
- d) D

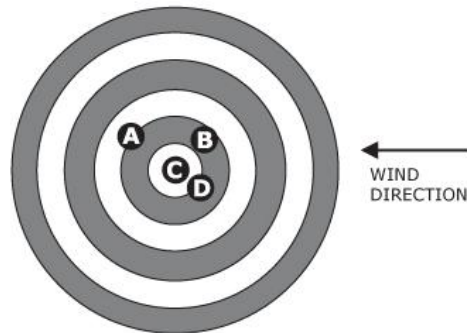
Question 3



Which way will the water move when air is blown through the expanding tube?

- a) A
- b) B
- c) C
- d) D

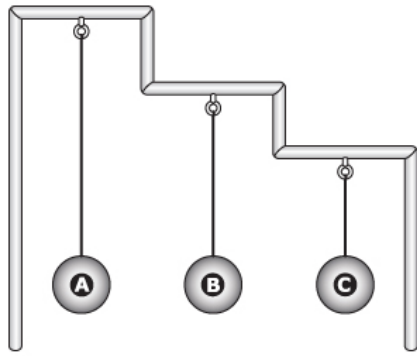
Question 4



At which point would an archer aim in order to hit the centre of the target?

- a) A
- b) B
- c) C
- d) D

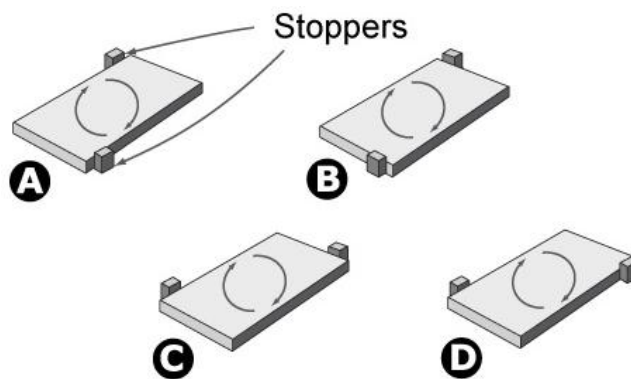
Question 5



If each pendulum were dropped from the same angle at the same time, which would stop swinging first?

- a) A
- b) B
- c) C
- d) They would stop at the same time

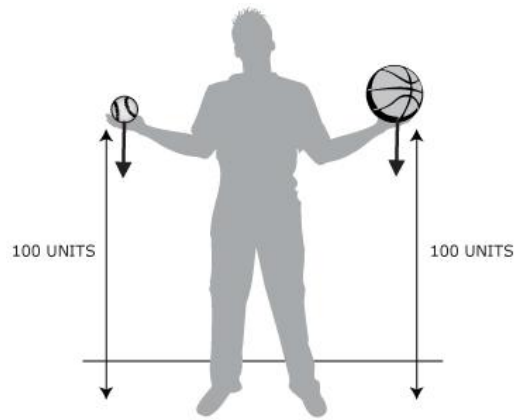
Question 6



Which block is least likely to spin when the stoppers are positioned as shown?

- a) A
- b) B
- c) C
- d) D

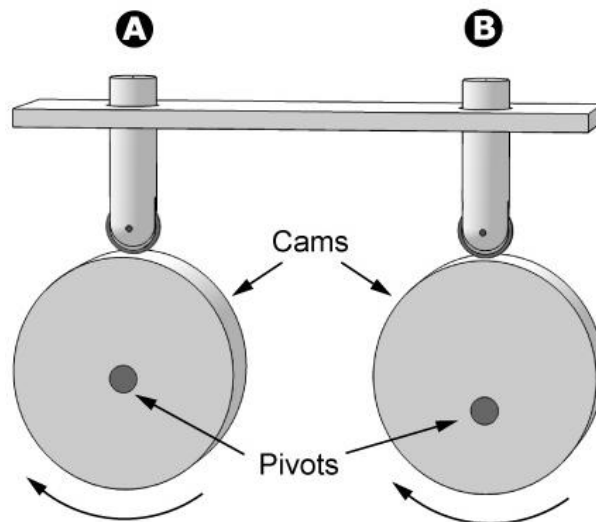
Question 7



Which ball will hit the ground first – the baseball on the left or the basketball on the right?

- a) Basketball
- b) Baseball
- c) Both at the same time
- d) More information is needed

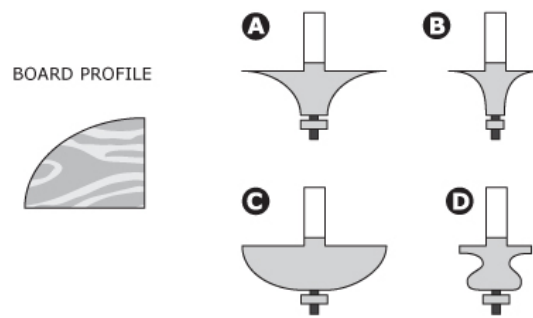
Question 8



Which rod will move up and down more with one revolution of the cam?

- a) A
- b) B
- c) The rods will move equally
- d) The rods will not move

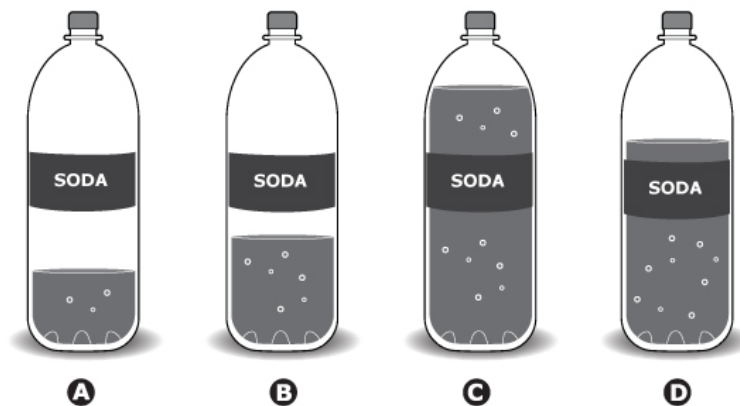
Question 9



Which of the router bits would be most likely to reproduce the profile of the board shown?

- a) A
- b) B
- c) C
- d) D

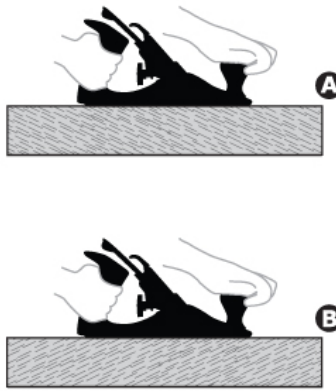
Question 10



If these four bottles containing soda are shaken, which will be the hardest to indent?

- a) A
- b) B
- c) C
- d) D

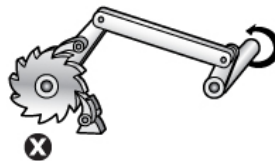
Question 11



The image illustrates two planers smoothing a board, where for each of the boards the grain is in the opposite direction. Which of the two boards is most likely to have the smoothest finish?

- a) A
- b) B
- c) Both will be equally smooth
- d) Neither will be smooth

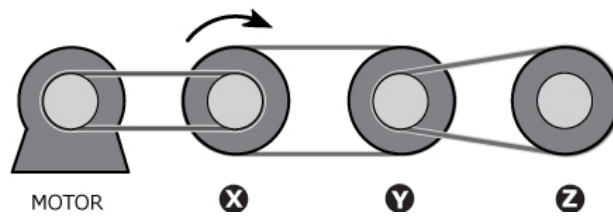
Question 12



Which of the following statements must be true?

- a) Wheel X can turn clockwise and counterclockwise
- b) Wheel X can only turn clockwise
- c) Wheel X can only turn counterclockwise
- d) Wheel X cannot turn in any direction

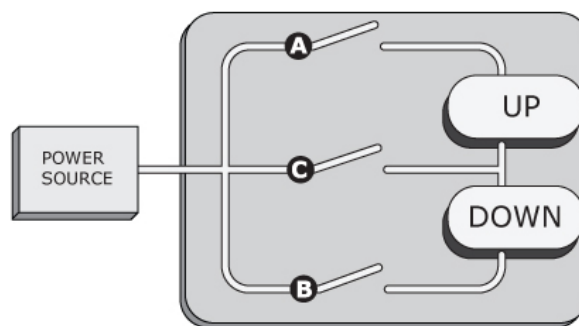
Question 13



If X moves in one direction, as shown, then:

- a) Y and Z move clockwise
- b) Y and Z move counterclockwise
- c) Y moves clockwise, and Z moves counterclockwise
- d) Y moves counterclockwise, and Z moves clockwise

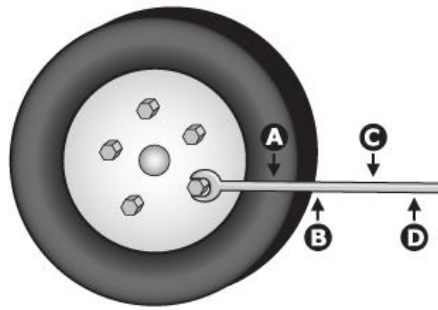
Question 14



In order to activate the mechanism labelled "Up" without activating the mechanism labelled "Down", which combination of switches would need to be closed in the electrical circuit shown?

- a) A and B
- b) A and C
- c) A, B and C
- d) B and C

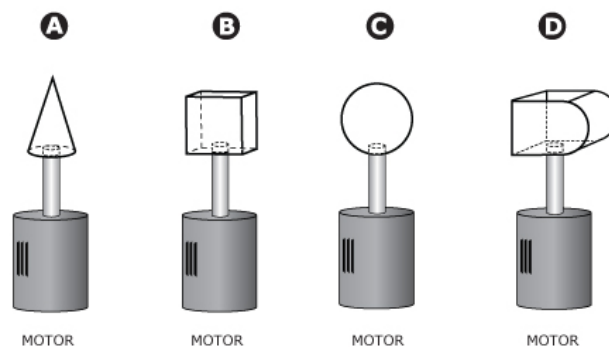
Question 15



In which position should you hold the wrench in order to remove the lug nut with the least amount of force?

- a) A
- b) B
- c) C
- d) D

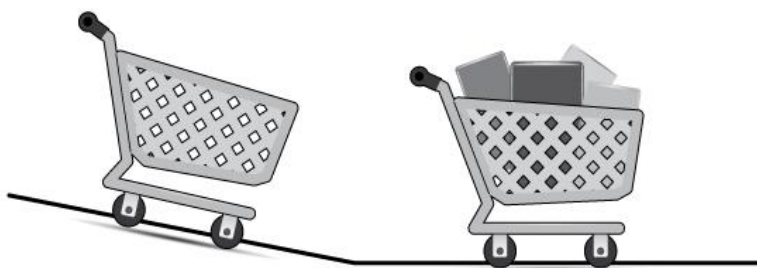
Question 16



Which of the objects will create the most vibration when the motor is turned on? Note that the axle attaching the object to the motor will spin, thus making the object spin.

- a) A
- b) B
- c) C
- d) D

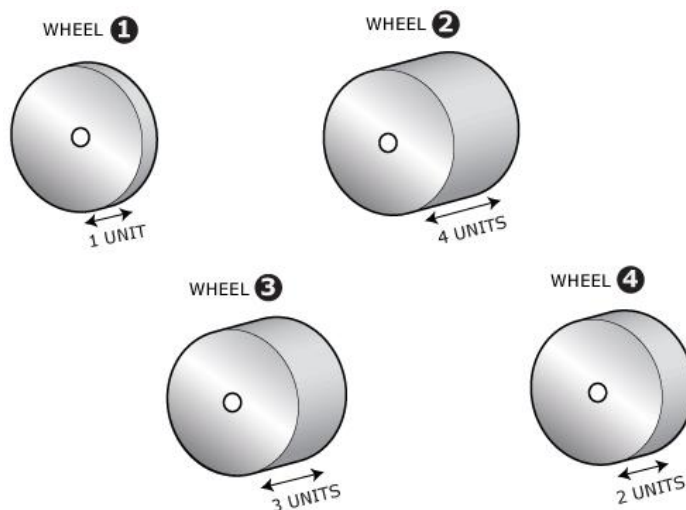
Question 17



An empty supermarket cart rolls down a ramp and collides with a cart full of groceries. The empty cart stops immediately. At what speed does the full cart move off?

- a) Slightly less than the speed of the empty cart when it hits the full cart
- b) Considerably less than the speed of the empty cart when it hits the full cart
- c) Slightly more than the speed of the empty cart when it hits the full cart
- d) The same speed as the empty cart when it hits the full cart

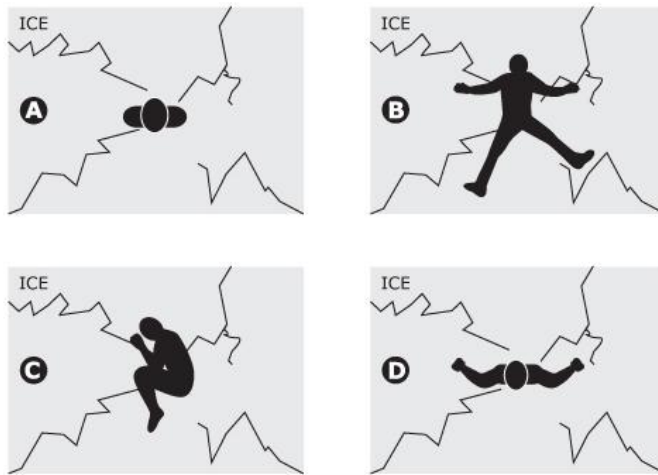
Question 18



Which wheel will allow a toy car to roll the furthest?

- a) Wheel 1
- b) Wheel 2
- c) Wheel 3
- d) Wheel 4

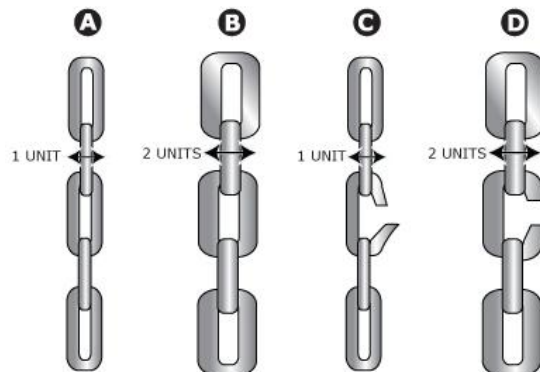
Question 19



In which position should the person be in order to be least likely to fall through the ice?

- a) A
- b) B
- c) C
- d) D

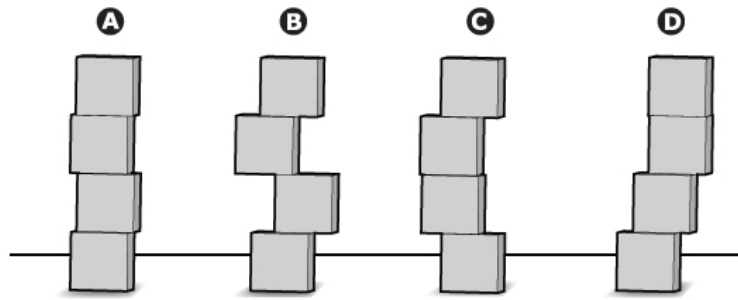
Question 20



Which of the following chain segments is the most likely to separate when put under tension?

- a) A
- b) B
- c) C
- d) D

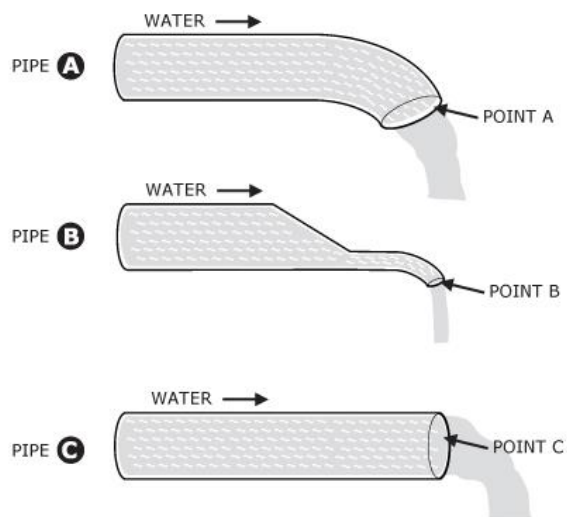
Question 21



If weight is placed on the top of each stack of blocks, which stack would support the most weight?

- a) A
- b) B
- c) C
- d) D

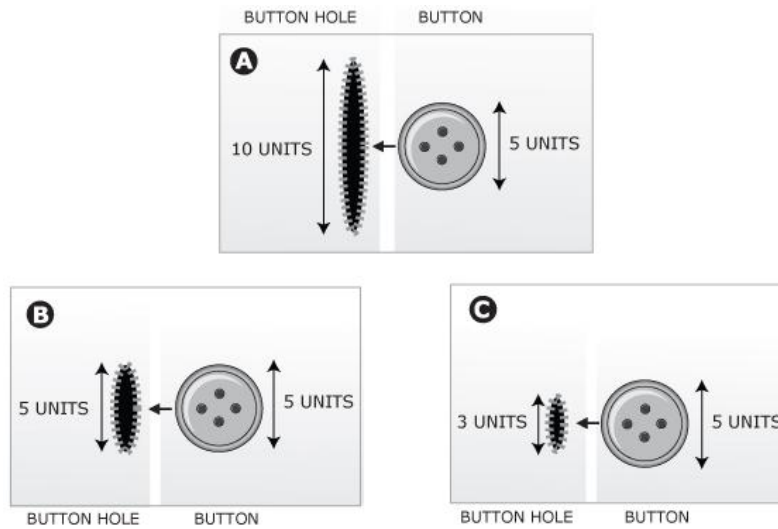
Question 22



At which point is the pressure the greatest?

- a) Point A
- b) Point B
- c) Point C
- d) The pressure is equal at all three points

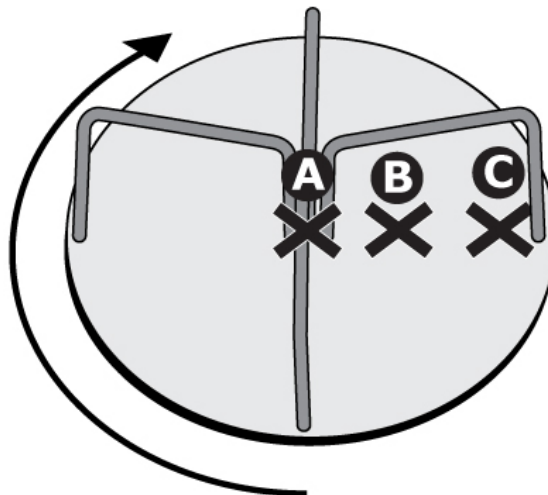
Question 23



Which of the button and hole combinations will work most effectively?

- a) A
- b) B
- c) C
- d) All buttons work the same

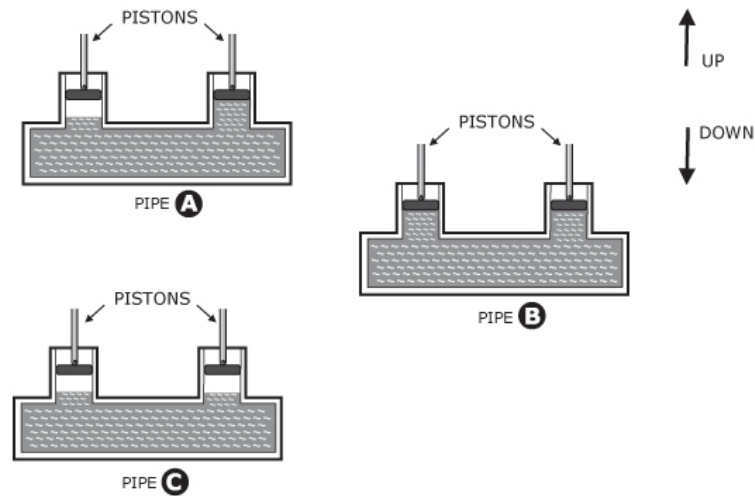
Question 24



Where on the spinning roundabout would a child have to hold on the tightest?

- a) At point A
- b) At point B
- c) At point C
- d) It doesn't make any difference

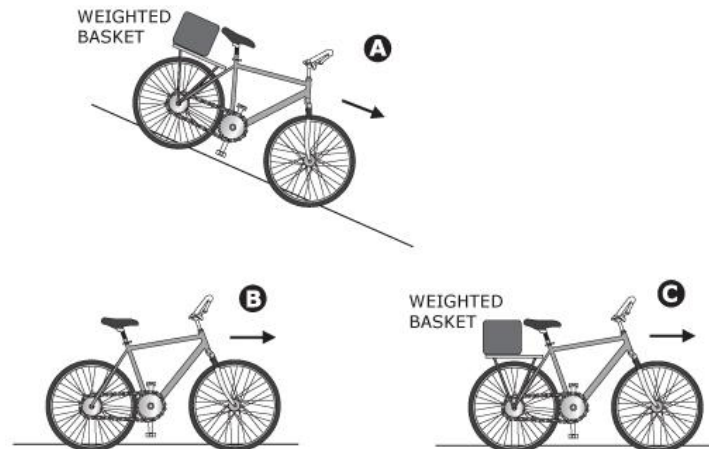
Question 25



In the three hydraulic systems shown, if the left piston is pushed down equally, which of the following is true?

- a) The right piston in figure A will be raised higher than the right piston in figures B or C
- b) The right piston in figure B will be raised higher than the right piston in figures A or C
- c) The right piston in figure C will be raised higher than the right piston in figures A or B
- d) The right piston will be raised equally in all figures

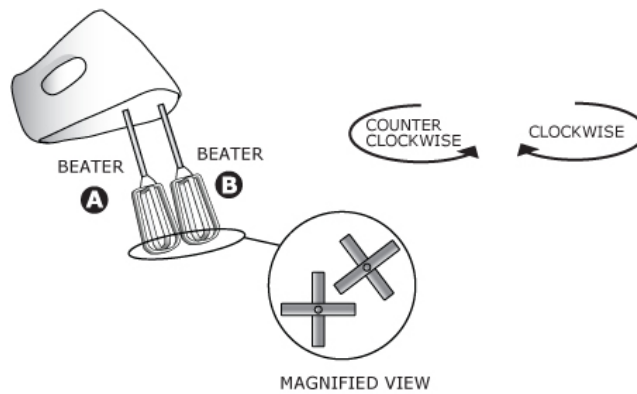
Question 26



If all bicycles are moving at the same speed, which will require the least force to bring the bicycle to a stop?

- a) A
- b) B
- c) C
- d) A, B and C will require the same force to bring them to a stop

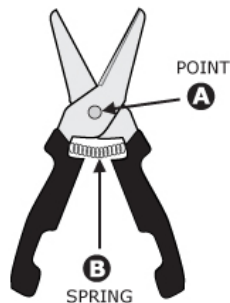
Question 27



To best mix a substance, what direction should each beater go?

- a) Both beaters should spin clockwise
- b) Both beaters should spin counterclockwise
- c) Beater A should spin counterclockwise and Beater B should spin clockwise
- d) Beater A should spin clockwise and Beater B should remain stationary

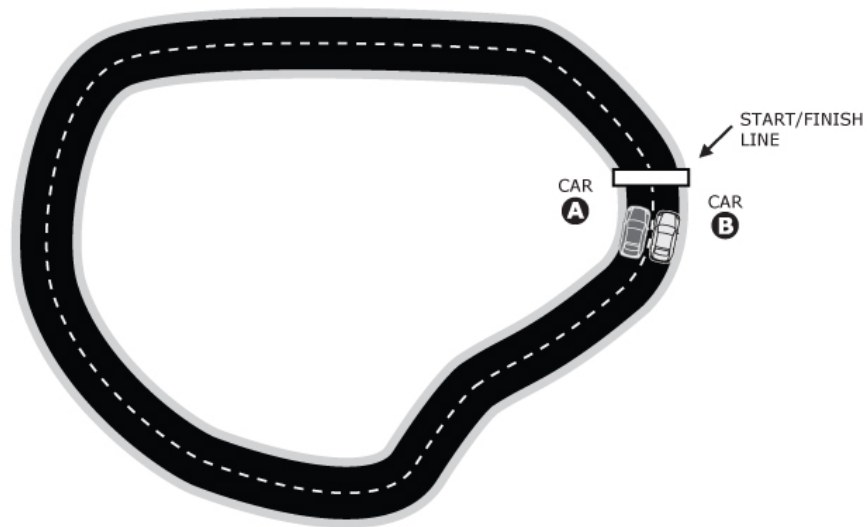
Question 28



When closing the shears, what happens to Point A and Spring B?

- a) Point A moves left and Spring B compresses
- b) Point A moves right and Spring B extends
- c) Point A does not move and Spring B compresses
- d) Point A does not move and Spring B extends

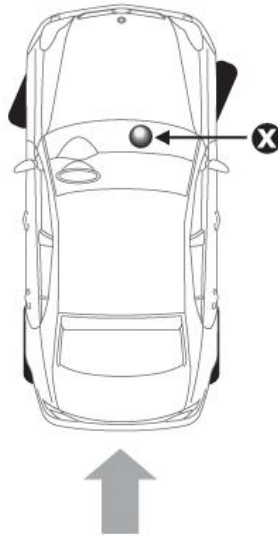
Question 29



If two of the same cars drive around the track at the same speed without crossing into another lane, which car will reach the end of the track first?

- a) Car A
- b) Car B
- c) Both cars will arrive at the end of the track together
- d) This cannot be determined with the information provided

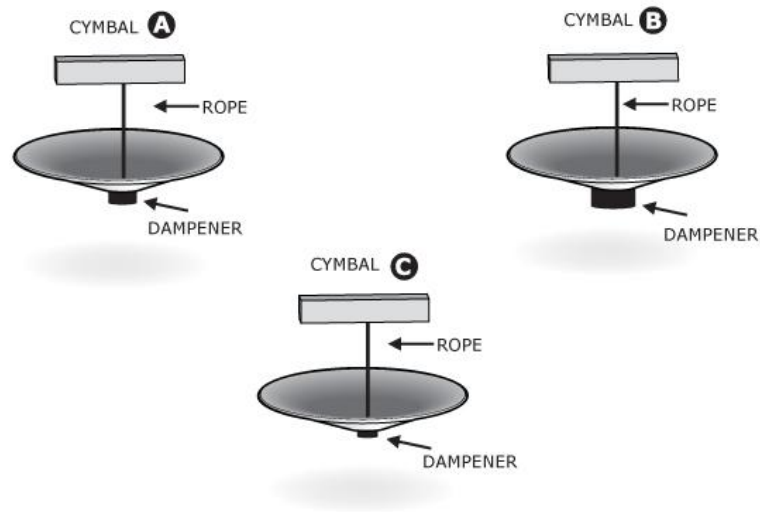
Question 30



If the car is moving forward and makes a sharp turn to the right, which way will Ball X move on the dashboard?

- a) Ball X will not move and keep moving in the same direction as the car
- b) Ball X will start moving backwards
- c) Ball X will move to the right
- d) Ball X will move to the left

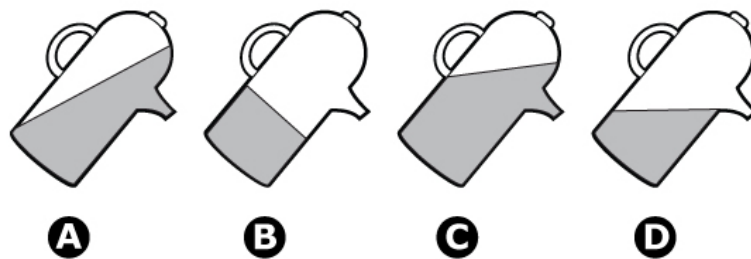
Question 31



When hit, which cymbal will vibrate the longest?

- a) A
- b) B
- c) C
- d) All would vibrate for the same amount of time

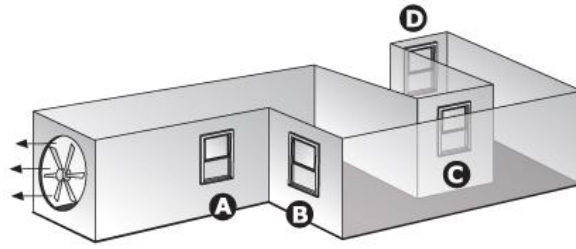
Question 32



A coffee pot is tilted. The level of coffee inside looks like which drawing?

- a) A
- b) B
- c) C
- d) D

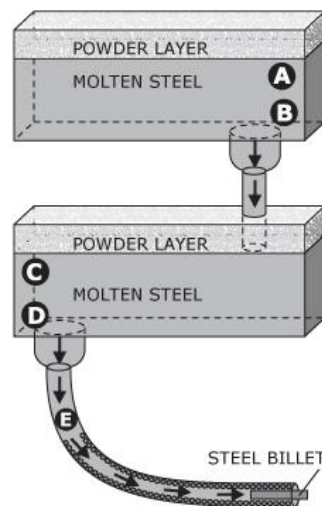
Question 33



Which window should be opened to produce the greatest cooling potential for the entire house?

- a) A
- b) B
- c) C
- d) D

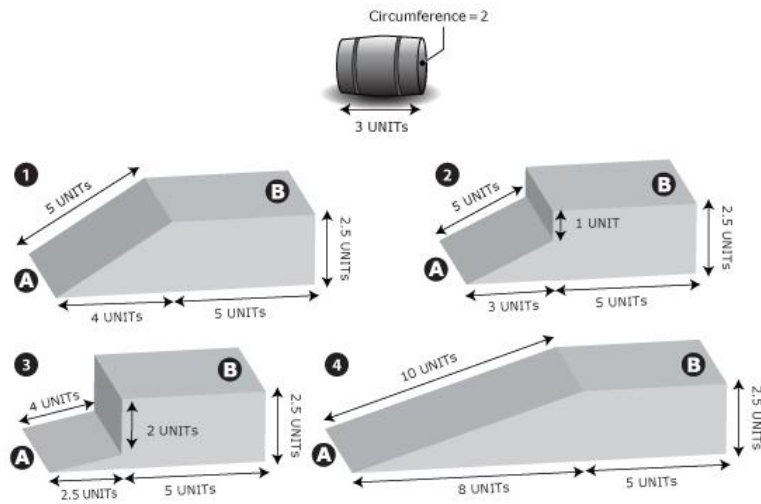
Question 34



In the continuous casting system where molten steel is moving from Point A to Point E, at which point would the molten steel be the hottest and at which point would it be the coolest?

- a) A is the hottest and B is the coolest
- b) C is the hottest and D is the coolest
- c) A is the hottest and E is the coolest
- d) D is the hottest and A is the coolest

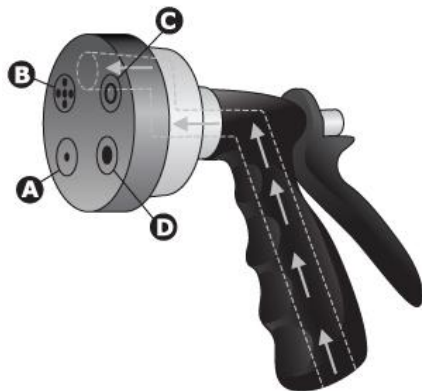
Question 35



Which of the four platforms would require the least amount of force to roll the barrel from Point A to Point B?

- a) 1
- b) 2
- c) 3
- d) 4

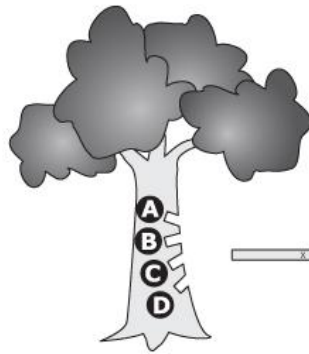
Question 36



If water comes out of the black areas of each nozzle, which spray pattern would create the most velocity?

- a) A
- b) B
- c) C
- d) D

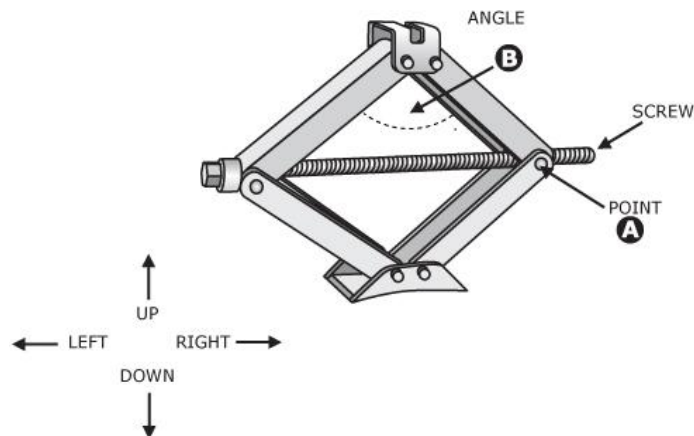
Question 37



If the plank is inserted into a slot on the tree, which would support the most weight on Point X of the plank?

- a) A
- b) B
- c) C
- d) D

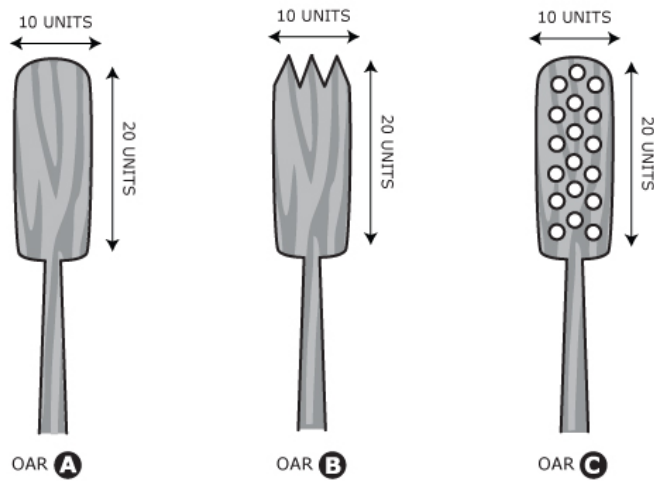
Question 38



To lift the car jack, what must result?

- a) Point A must move left along the screw, and angle B must increase
- b) Point A must move left along the screw, and angle B must decrease
- c) Point A must move right along the screw, and angle B must increase
- d) Point A must move right along the screw, and angle B must decrease

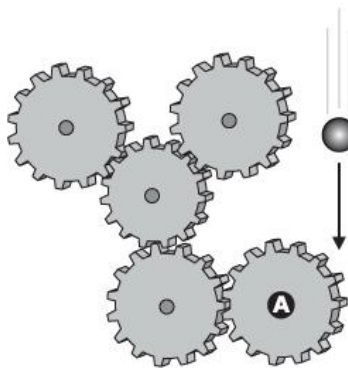
Question 39



Which oar will move easiest through water?

- a) A
- b) B
- c) C
- d) All will move through the water with the same amount of ease

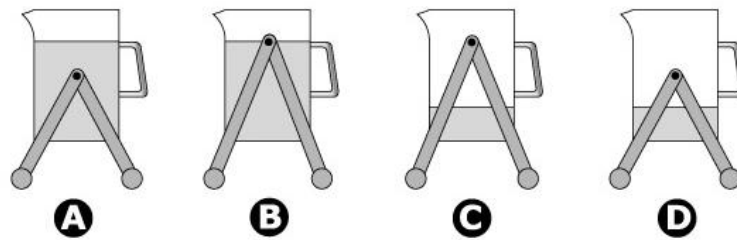
Question 40



If a ball is dropped on Gear A at the specified point, how many gears will turn counterclockwise, assuming the force applied by the ball is sufficient to move all the gears?

- a) 1
- b) 2
- c) 3
- d) 5

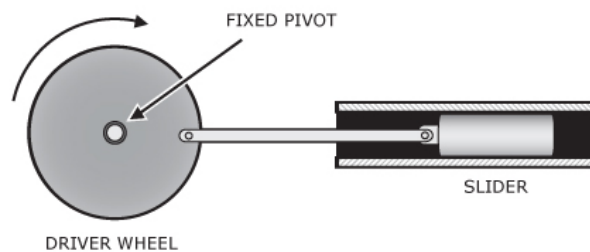
Question 41



Which container requires the least effort to begin pouring the liquid?

- a) A
- b) B
- c) C
- d) D

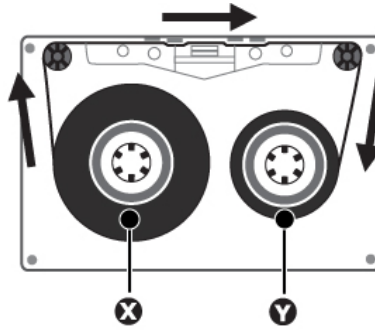
Question 42



When the driver wheel goes around one whole turn the slider moves. Which way does it move?

- a) First left, then right, then left again
- b) First right, then left, then right again
- c) First left, then right
- d) First right, then left

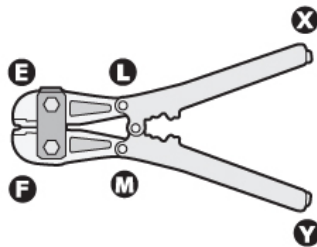
Question 43



Imagine the tape is moving in the directions shown by the arrows. Which of the following statements is true?

- a) Spools X and Y spin at the same speed
- b) Spool X will begin to spin faster and faster
- c) Spool X will begin to spin slower and slower
- d) Spool Y will begin to spin faster and faster

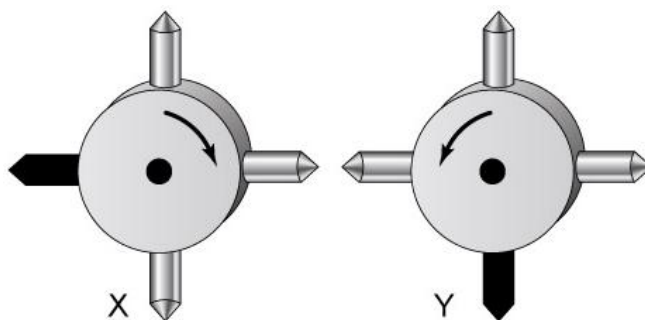
Question 44



If ends X and Y are pushed together, then:

- a) Joints L and M will move closer together
- b) Joints L and M will move further apart
- c) Ends E and F will move further apart
- d) Joints L and M will move further apart, and ends E and F will move closer together

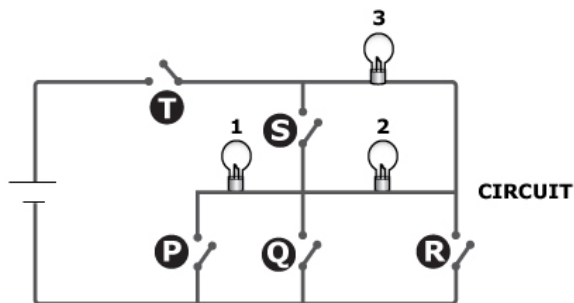
Question 45



If wheel X rotates twice as fast as wheel Y, how many revolutions will wheel X complete before the black pointers meet?

- a) $\frac{1}{2}$
- b) 1
- c) $1\frac{1}{2}$
- d) 2

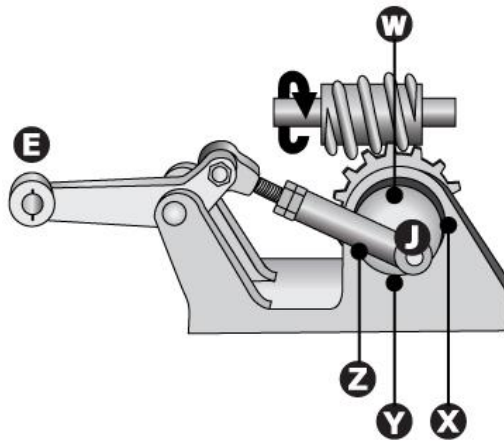
Question 46



Which two switches should be closed to light up bulbs 2 and 3 only?

- a) P and T
- b) Q and R
- c) Q and S
- d) Q and T

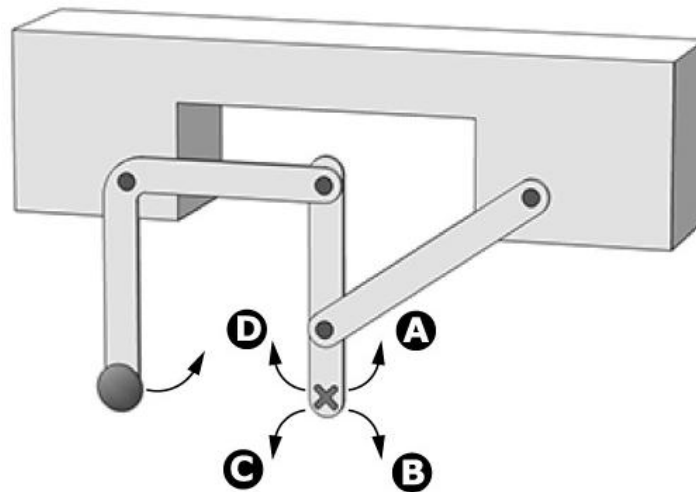
Question 47



When the wheel turns, end E moves down and up in an arc. End E will be at the top of the arc when joint J is at point:

- a) W
- b) X
- c) Y
- d) Z

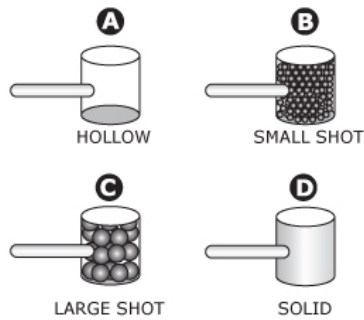
Question 48



In which direction will the "X" begin to move when the handle is operated as shown?

- a) A
- b) B
- c) C
- d) D

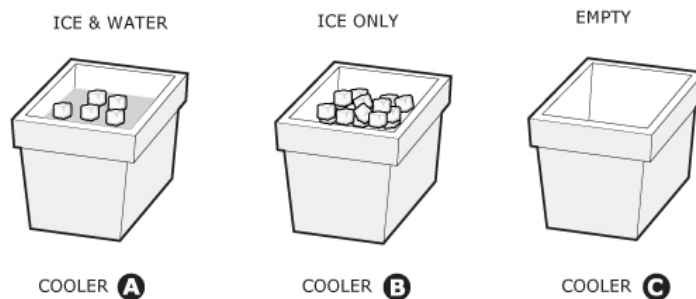
Question 49



If the mallets strike the surface with the same force, which of the mallets below would have the least chance of recoil, or backward bounce, after striking a surface?

- a) A
- b) B
- c) C
- d) D

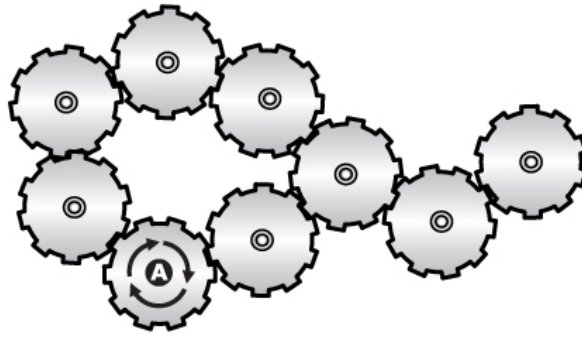
Question 50



Order the coolers from the one capable of keeping bottles of water the coldest to the warmest.

- a) A, B, C
- b) B, A, C
- c) C, A, B
- d) All would keep bottles equally cold.

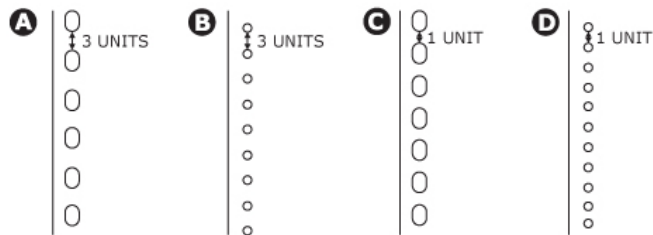
Question 51



If Gear A is spinning clockwise, how many gears are spinning counterclockwise?

- a) 4
- b) 6
- c) 5
- d) None, Gear A cannot spin at all

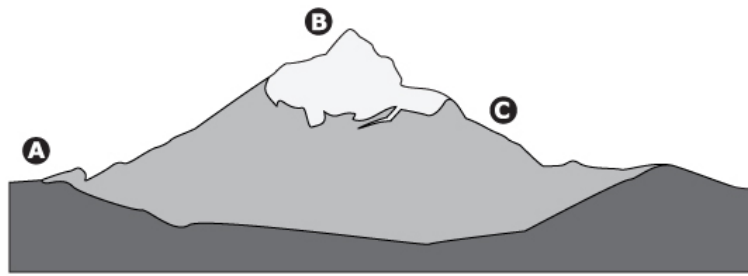
Question 52



Which perforated sheet of paper will be the easiest to tear at the perforations?

- a) A
- b) B
- c) C
- d) D

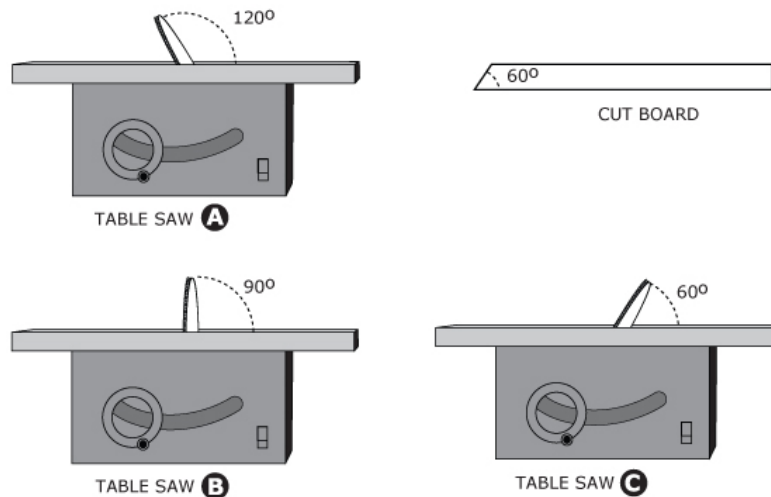
Question 53



If pots with equal amounts of water were placed on identical heat sources in each location at the same time, the pot in which location would come to the boil first?

- a) A
- b) B
- c) C
- d) All would come to the boil at the same time

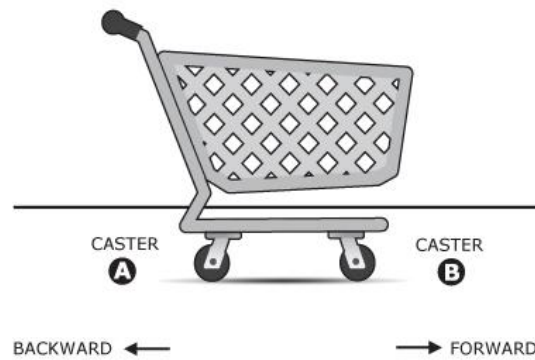
Question 54



Which of the saws was used to cut the board?

- a) Table Saw A
- b) Table Saw B
- c) Table Saw C
- d) Table Saw A or Table Saw C could have produced the cut

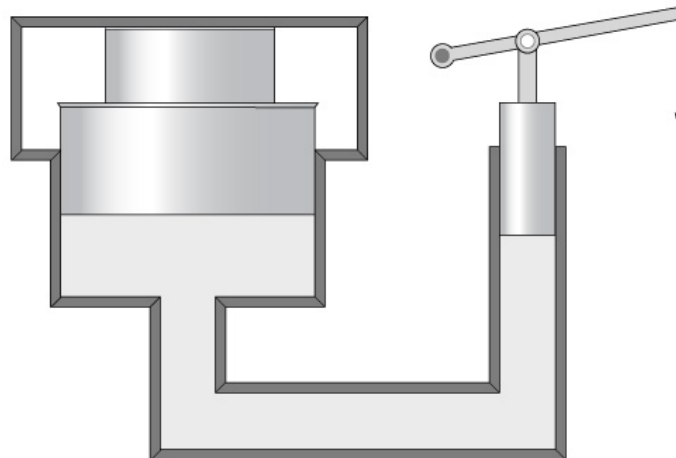
Question 55



Casters attach the shopping cart base to the wheels. For the shopping cart to roll forward, what would need to happen to the casters

- a) Neither caster would move
- b) Both casters would turn 180° (turn around)
- c) Caster A would turn 180° , and Caster B would not move.
- d) Caster A would not move, and Caster B would move 180°

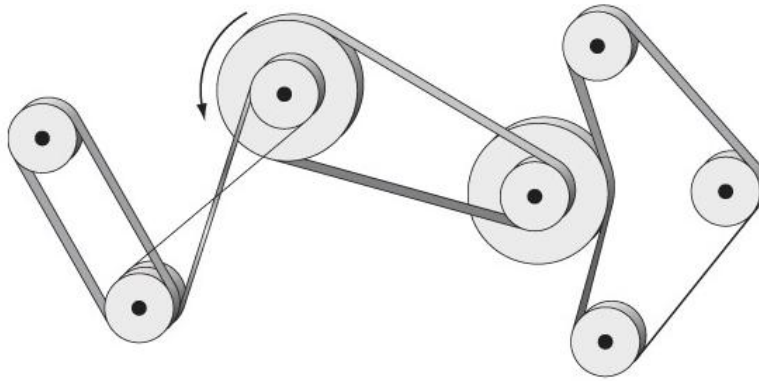
Question 56



If the small plunger is forced down by 10 units, how far will the larger plunger move?

- a) Up more than 10 units
- b) Down less than 10 units
- c) Up less than 10 units
- d) Up exactly 10 units

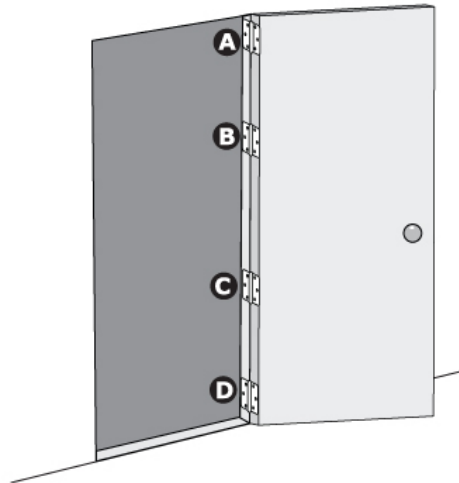
Question 57



How many pulleys turn clockwise?

- a) 3
b) 4
c) 5
d) 6

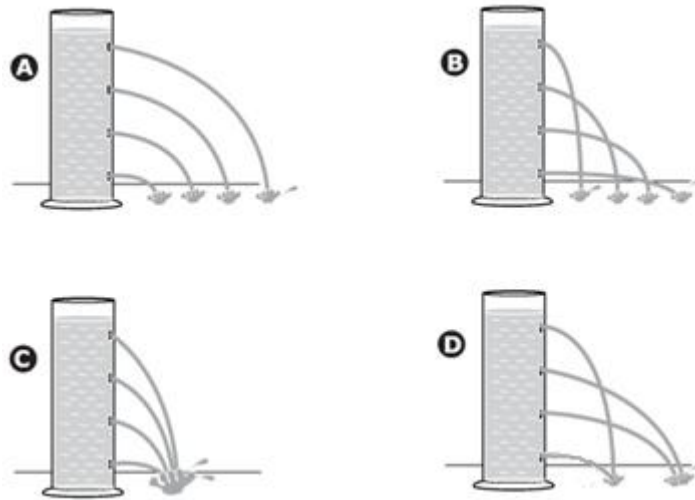
Question 58



Which set of hinges makes the door most stable and open most effectively?

- a) A and C
- b) B and C
- c) A and D
- d) B and D

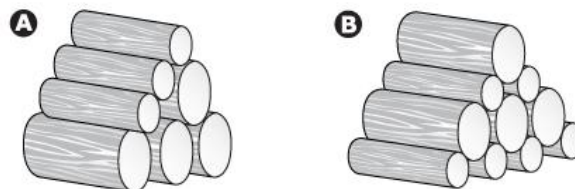
Question 59



Which of the scenarios is most likely?

- a) A
- b) B
- c) C
- d) D

Question 60



Which of the stacks of logs would dry faster?

- a) A
- b) B
- c) Both stacks would dry at the same time
- d) There are too many logs in both stacks for the logs to dry