

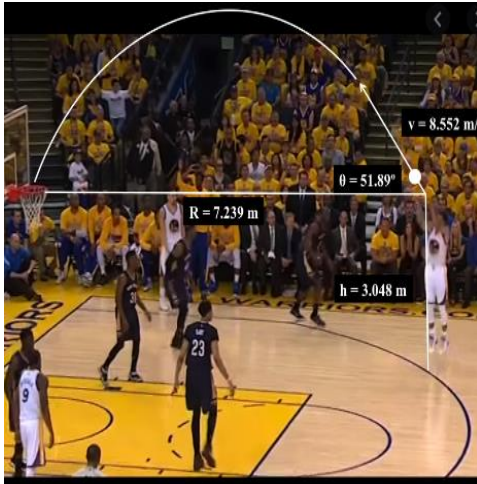
1. In each room the same number of participants are to be seated and all of them being in the same subject, hence maximum number participants that can accommodated in each room are
 - a) 14
 - b) 12
 - c) 16
 - d) 18
2. What is the minimum number of rooms required during the event?
 - a) 11
 - b) 31
 - c) 41
 - d) 21
3. The LCM of 60, 84 and 108 is
 - a) 3780
 - b) 3680
 - c) 4780
 - d) 4680
4. The product of HCF and LCM of 60, 84 and 108 is
 - a) 55360
 - b) 35360
 - c) 45500
 - d) 45360
5. 108 can be expressed as a product of its primes as
 - a) $2^3 \times 3^2$
 - b) $2^3 \times 3^3$
 - c) $2^2 \times 3^2$
 - d) $2^2 \times 3^3$

ANSWERS

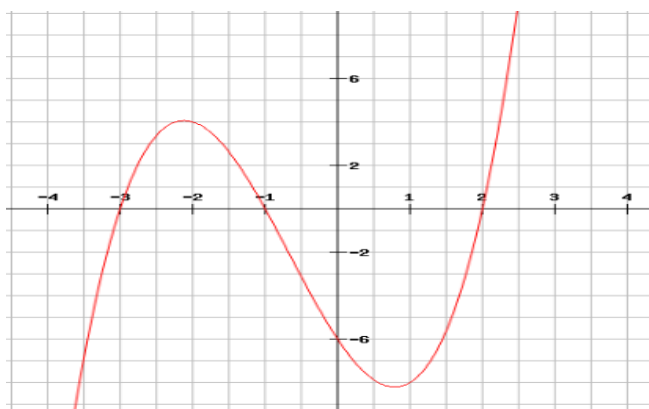
1. b) 12
2. d) 21
3. a)3780
4. d)45360
5. d) $2^2 \times 3^3$

CASE STUDY 3:

Basketball and soccer are played with a spherical ball. Even though an athlete dribbles the ball in both sports, a basketball player uses his hands and a soccer player uses his feet. Usually, soccer is played outdoors on a large field and basketball is played indoor on a court made out of wood. The projectile (path traced) of soccer ball and basketball are in the form of parabola representing quadratic polynomial.



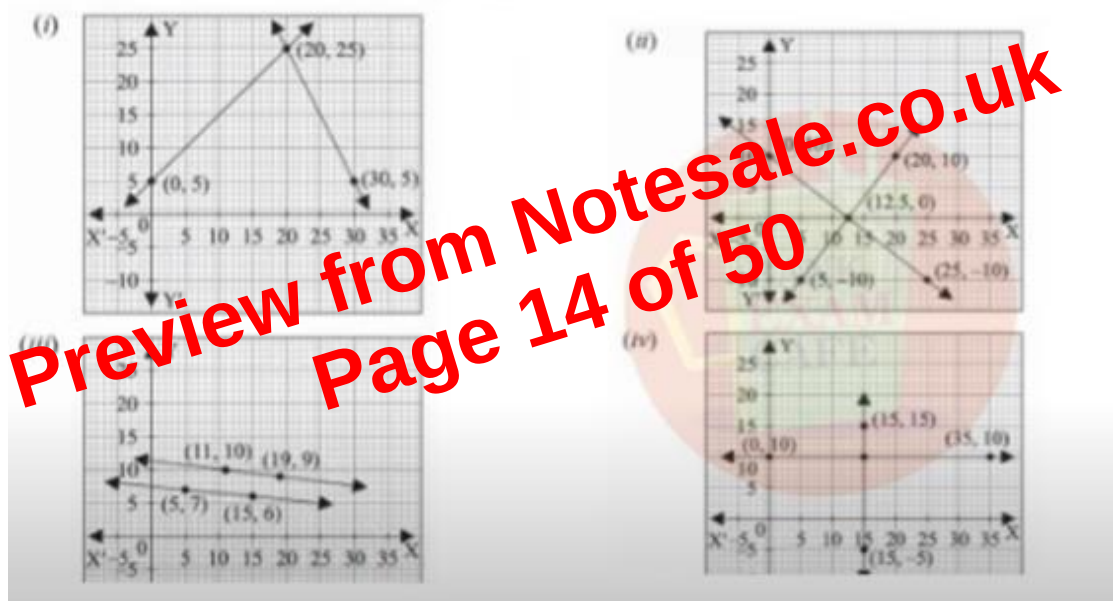
1. The shape of the path traced shows
a) Spiral
b) Ellipse
c) Linear
d) Parabola
2. The graph of parabola opens upwards, if _____
a) $a = 0$
b) $a < 0$
c) $a > 0$
d) $a \geq 0$
3. Observe the following graph and answer



2. A person travels a distance of 50km. The amount he has to pay is
- Rs.155
 - Rs.255
 - Rs.355
 - Rs.455

Refer situation 2

3. What will a person have to pay for travelling a distance of 30km?
- Rs.185
 - Rs.289
 - Rs.275
 - Rs.305
4. The graph of lines representing the conditions are: (situation 2)



ANSWERS:

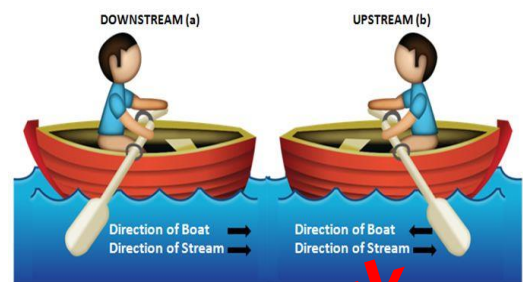
- B
- C
- B
- (iii)

ANSWERS:

1. a) $2(x + 5)$ km
2. c) 25km/ hour
3. a) 20km/ hour
4. d) 16 hour

CASE STUDY 2:

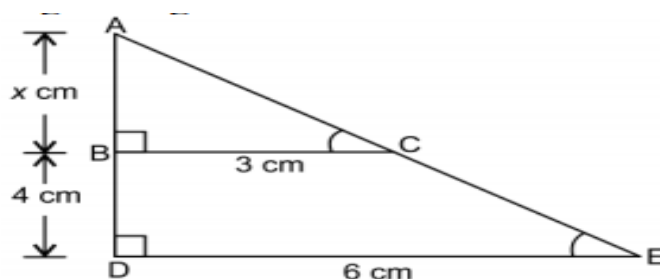
The speed of a motor boat is 20 km/hr. For covering the distance of 15 km the boat took 1 hour more for upstream than downstream.



1. Let speed of the stream be x km/hr. then speed of the motor boat in upstream will be
 - a) 20 km/hr
 - b) $(20 + x)$ km/hr
 - c) $(20 - x)$ km/hr
 - d) $2x$ km/hr
2. What is the relation between speed ,distance and time?
 - a) speed = (distance)/time
 - b) distance = (speed)/time
 - c) time = speed x distance
 - d) speed = distance x time
3. Which is the correct quadratic equation for the speed of the current ?
 - a) $x^2 + 30x - 200 = 0$
 - b) $x^2 + 20x - 400 = 0$
 - c) $x^2 + 30x - 400 = 0$
 - d) $x^2 - 20x - 400 = 0$
4. What is the speed of current ?
 - a) 20 km/hour
 - b) 10 km/hour

This means that a length of 1 cm on the photograph above corresponds to a length of 200cm or 2 m, of the actual engine. The scale can also be written as the ratio of two lengths.

1. If the length of the model is 11cm, then the overall length of the engine in the photograph above, including the couplings (mechanism used to connect) is:
 - a) 22cm
 - b) 220cm
 - c) 220m
 - d) 22m
2. What will affect the similarity of any two polygons?
 - a) They are flipped horizontally
 - b) They are dilated by a scale factor
 - c) They are translated down
 - d) They are not the mirror image of one another.
3. What is the actual width of the door if the width of the door in photograph is 0.35cm?
 - a) 0.7m
 - b) 0.7cm
 - c) 0.07cm
 - d) 0.07m
4. If two similar triangles have a scale factor 5:3 which statement regarding the two triangles is true?
 - a) The ratio of their perimeters is 15:1
 - b) Their altitudes have a ratio 25:15
 - c) Their medians have a ratio 10:4
 - d) Their angle bisectors have a ratio 11:5
5. The length of AB in the given figure:



- b) 200 mm
 - c) 250 mm
 - d) 280 mm
2. The area of each sector of the brooch is
- a) 44 mm^2
 - b) 52 mm^2
 - c) 77 mm^2
 - d) 68 mm^2

Refer to Design B

3. The circumference of outer part (golden) is
- a) 48.49 mm
 - b) 82.2 mm
 - c) 72.50 mm
 - d) 62.86 mm
4. The difference of areas of golden and silver parts is
- a) 18π
 - b) 44π
 - c) 51π
 - d) 64π
5. A boy is playing with brooch 2. He makes revolution with it along its edge.
How many complete revolutions must it take to cover $80 \pi \text{ mm}$?
- a) 2
 - b) 3
 - c) 4
 - d) 5

ANSWERS:

- 1. b) 200mm
- 2. c) 77 mm^2
- 3. d) 62.86 mm
- 4. c) 51π
- 5. c) 4

SURFACE AREAS AND VOLUMES

3. The modal class of the above data is I
- a) 0-10
 - b) 10-20
 - c) 20-30
 - d) 30-40

Refer to data received from Colony B

4. The modal weekly consumption is
- a) 38.2 units
 - b) 43.6 units
 - c) 26 units
 - d) 32 units
5. The mean weekly consumption is
- a) 15.65 units
 - b) 32.8 units
 - c) 38.75 units
 - d) 48 units

ANSWERS

1. c) 20 units
2. a) 19.64 units
3. c) 20-30 units
4. b) 43.6 units
5. c) 38.75 units

PROBABILITY

CASE STUDY 1:

On a weekend Rani was playing cards with her family .The deck has 52 cards.If her brother drew one card .



1. Find the probability of getting a king of red colour.

- a) $\frac{1}{26}$
- b) $\frac{1}{13}$
- c) $\frac{1}{52}$
- d) $\frac{1}{4}$

2. Find the probability of getting a face card.

- a) $\frac{1}{26}$
- b) $\frac{1}{13}$
- c) $\frac{2}{13}$
- d) $\frac{3}{13}$

3. Find the probability of getting a jack of hearts.

- a) $\frac{1}{26}$
- b) $\frac{1}{52}$
- c) $\frac{3}{52}$
- d) $\frac{3}{26}$

4. Find the probability of getting a red face card.

- a) $\frac{3}{13}$
- b) $\frac{1}{13}$
- c) $\frac{1}{52}$
- d) $\frac{1}{4}$

5. Find the probability of getting a spade.

- a) $\frac{1}{26}$
- b) $\frac{1}{13}$
- c) $\frac{1}{52}$
- d) $\frac{1}{4}$