

SETH M.R. JAIPURIA SCHOOLS BANARAS PARAO CAMPUS
SUBJECT – MATHEMATICS
CLASS – X (WORKSHEET)

1. In a formula racing competition, the time taken by two racing cars A and B to complete 1 round of the track is 30 minutes and p minutes respectively. If the cars meet again at the starting point for the first time after 90 minutes and the $\text{HCF}(30, p) = 15$, then the value of p is

(a) 45 minutes (b) 60 minutes (c) 75 minutes (d) 180 minutes

2. The solution of the following pair of equation is: $x - 3y = 2$, $3x - y = 14$

(a) $x = 5, y = 1$ (b) $x = 2, y = 3$ (c) $x = 1, y = 2$ (d) $x = 1, y = 4$

3. If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$, where x and y are prime numbers, then the $\text{HCF}(a, b)$ is:

(a) xy (b) xy^2 (c) x^3y^3 (d) x^2y^2

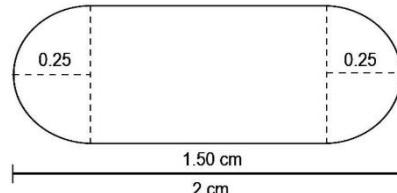
4. The ratio in which x -axis divides the join of $(2, -3)$ and $(5, 6)$ is:

(a) 1:2 (b) 3:4 (c) 1:3 (d) 1:5

5. The 11th and 13th terms of an AP are 35 and 41 respectively, its common difference is

(a) 38 (b) 32 (c) 6 (d) 3

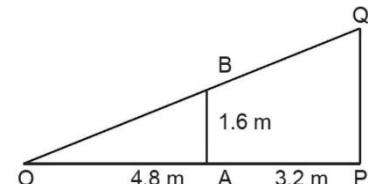
6. A medicine-capsule is in the shape of a cylinder of radius 0.25 cm with two hemispheres stuck to each of its ends. The length of the entire capsule is 2 cm. What is the total surface area of the capsule? (Take π as 3.14)



(a) 0.785 cm^2 (b) 0.98125 cm^2 (c) 2.7475 cm^2 (d) 3.14 cm^2

7. A 1.6 m tall girl stands at distance of 3.2 m from a lamp post and casts shadow of 4.8 m on the ground, then the height of the lamp post is

(a) 8 m (b) 4 m (c) 6 m (d) $8/3$ m



8. A tangent is drawn from a point at a distance of 17 cm of circle $(0, r)$ of radius 8 cm. The length of tangent is

(a) 5 cm (b) 9 cm (c) 15 cm (d) 23 cm

9. The runs scored by a batsman in 35 different matches are given below:

Runs Scored	0 – 15	15 – 30	30 – 45	45 – 60	60 – 75	75 – 90
Frequency	5	7	4	8	8	3

The lower limit of the median class is

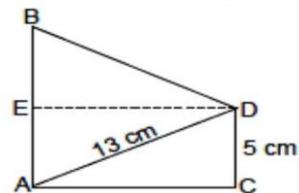
(a) 15 (b) 30 (c) 45 (d) 60

10. If in two triangles, DEF and PQR, $\angle D = \angle Q$ and $\angle R = \angle E$, then which of the following is not true?

(a) $\frac{EF}{PR} = \frac{DF}{PQ}$ (b) $\frac{EF}{RP} = \frac{DE}{PQ}$ (c) $\frac{DE}{QR} = \frac{DF}{PQ}$ (d) $\frac{EF}{RP} = \frac{DE}{QR}$

11. In the given figure, if $AB = 14$ cm, then the value of $\tan B$ is:

(a) $\frac{4}{3}$ (b) $\frac{14}{3}$
(c) $\frac{5}{3}$ (d) $\frac{13}{3}$



12. Two cubes each with 6 cm edge are joined end to end. The surface area of the resulting cuboid is
(a) 180 cm^2 (b) 360 cm^2 (c) 300 cm^2 (d) 260 cm^2

13. A cone, a hemisphere and cylinder are of the same base and of the same height. The ratio of their volumes is

(a) 1: 2: 3 (b) 2: 1: 3 (c) 3: 1: 2 (d) 3: 2: 1

14. The probability of getting a bad egg in a lot of 400 is 0.035. The number of bad eggs in the lot is
(a) 7 (b) 14 (c) 21 (d) 28

15. If $\sqrt{3}\sin \theta - \cos \theta = 0$ and $0^\circ < \theta < 90^\circ$, find the value of θ .

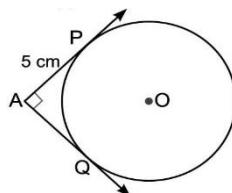
(a) 30° (b) 45° (c) 60° (d) 90°

16. Find the value of k for which the equation $x^2 + k(2x + k - 1) + 2 = 0$ has real and equal roots.

(a) 2 (b) 3 (c) 4 (d) 5

17. In the below figure, the pair of tangents AP and AQ drawn from an external point A to a circle with centre O are perpendicular to each other and length of each tangent is 5 cm. Then radius of the circle is
(a) 10 cm (b) 7.5 cm

(c) 5 cm (d) 2.5 cm



18. The radii of two cylinders are in the ratio 5: 7 and their heights are in the ratio 3: 5. The ratio of their curved surface area is

(a) 3: 7 (b) 7: 3 (c) 5: 7 (d) 3: 5

Direction: In the question number 19 & 20, A statement of Assertion (A) is followed by a statement of Reason(R). Choose the correct option

a) Both A and R are true, and R is the correct explanation of A.
b) Both A and R are true, but R is not the correct explanation of A.
c) A is true, but R is false.
d) A is false, but R is true.

19. Assertion (A): If $x = 2\sin^2 \theta$ and $y = 2\cos^2 \theta + 1$ then the value of $x + y = 3$.

Reason (R): For any value of θ , $\sin^2 \theta + \cos^2 \theta = 1$

20. Assertion (A): The length of the minute hand of a clock is 7 cm. Then the area swept by the minute hand in 5 minute is $77/6 \text{ cm}^2$.

Reason (R): The length of an arc of a sector of angle q and radius r is given by $l = \frac{\theta}{360^\circ} \times 2\pi r$