

MATHEMATICS TEST –BEFORE PRE BOARD

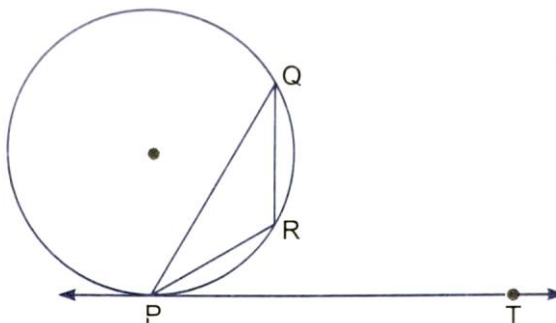
STD –X

DATE-26/11/2025

TIME 40 MIN

MM 15

(1) In the fig., PQ is a chord of a circle and PT is the tangent at P such that $\angle QPT = 70^\circ$. Then $\angle PRQ$ is equal to



- (a) 110° (b) 55° (c) 70° (d) 60°

(2) If $\sin A + \sin^2 A = 1$, then the value of the expression $\cos^2 A + \cos^4 A$ is

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

(3) If the angles of elevation of a tower from two points at distances r and s where $r > s$ from its foot and in the same straight line from it are 30° and 60° , then the height of the tower is

- (a) $\sqrt{r+s}$ (b) $\sqrt{r-s}$ (c) $\sqrt{rs}$ (d) $\sqrt{\frac{r}{s}}$

(4) If $x = a$ and $y = b$ is the solution the equations $x - y = 2$ and $x + y = 4$ then the values of a and b are respectively

- (a) 4 and 12 (b) 5 and 15 (c) 3 and 1 (d) -1 and -3

(5) The 4th term from the end of the AP: $-11, -8, -5, \dots, 49$ is

- (a) 37 (b) 40 (c) 43 (d) 58

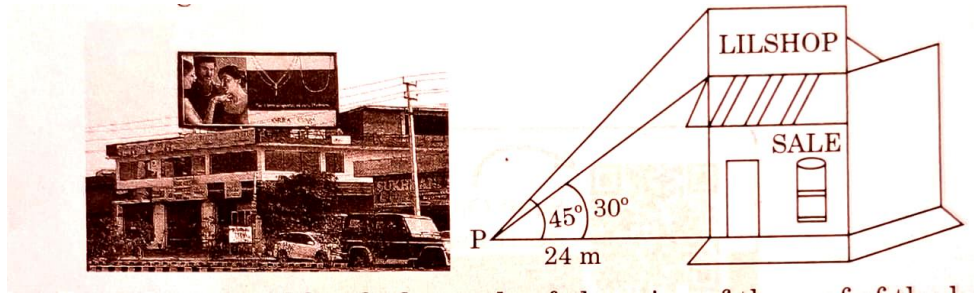
(6) If $\triangle ABC \sim \triangle EDF$ then which of the following is not true?

- (a) $BC \cdot EF = AC \cdot FD$ (b) $AB \cdot EF = AC \cdot DE$ (c) $BC \cdot DE = AB \cdot EF$ (d) $BC \cdot DE = AB \cdot FD$

(7) The value of $\frac{\tan^2 60^\circ - \sin^2 30^\circ}{\tan^2 45^\circ + \cos^2 30^\circ}$ is

- (a) $\frac{7}{11}$ (b) $\frac{11}{13}$ (c) $\frac{13}{11}$ (d) $\frac{11}{7}$

(8) Esha purchased a new building for her business. Being in the prime location, she decided to make some more money by putting up an advertisement sign for a rental ad income on the roof of the building.

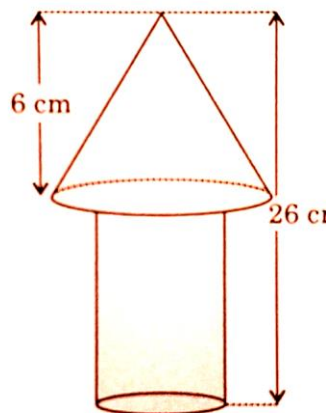


From a point P on the ground level, the angle of elevation of the roof of the building is 30° and the angle of elevation of the top of the sign board is 45° . The point P is at a distance of 24 m from the base of the building.

- (i) Find the height of the building without sign board.
- (ii) Find the length of the sign board.
- (iii) Find the distance of the point P from the top of the sign board.

(9) In a toy manufacturing company, wooden parts are assembled and painted to prepare a toy. One specific toy is in the shape of a cone mounted on a cylinder.

For the wood processing activity centre, the wood is taken out of storage to be sawed, after which it undergoes rough polishing, then is cut, drilled and has holes punched in it and then it is fine polished using sandpaper.



For the retail packaging and delivery activity centre, the polished wood sub – parts are assembled together, then decorated using paint.

The total height of the toy is 26 cm and the height of its conical part is 6 cm. The diameters of the base of the conical part is 5 cm and that of the cylindrical part is 4 cm. [use $\pi = 3.14$]

- (i) If its cylindrical part is to be painted yellow, find the surface area need to be painted.
- (ii) If its conical part is need to be painted green, find the surface area need tro be painted.
- (iii) If the cost of painting the toy is 3 paise per cm^2 , then find the cost of painting the toy.