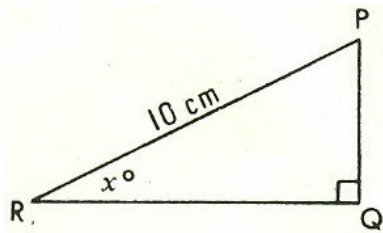


1.



Given that $\tan x^\circ = \frac{1}{3}$, then the length, in centimetres, of PQ is

- A $\frac{3}{10}$
- B $\sqrt{10}$
- C $\frac{\sqrt{10}}{3}$
- D $\frac{4}{3}$

2. For varying values of p the equation $y - 1 = p(x - 1)$ is the equation of a line. All such lines.

- A have the same gradient
- B cut the x -axis at the same point
- C cut the y -axis at the same point
- D pass through a fixed point not on the axes.

3. Which of the following belong(s) to the set $L \cup M$ where

$L = \{(x, y): x + 2y = 3, x, y \in R\}$?
and

$M = \{(x, y): x < 4, x, y \in R\}$?

- 1. (-5, 3)
 - 2. (5, -1)
 - 3. (1, 3)
- A (1), (2) and (3)
 - B (1) and (3) only
 - C (1) and (2) only
 - D (3) only

4. Given that $n = s(s + 1)(s + 2)$ where s is a positive integer, which of the following must be true?

- (1) n is even
- (2) n is a multiple of 3
- (3) n is a multiple of 4

- A (1) only
- B (2) only
- C (1) and (2) only
- D (1) and (3) only

5. Given that $f(x) = \sin x$, then $f'(x)$ is defined as the limit as h tends to 0 of

- A $\frac{\sin x + \sin h - \sin x}{h}$
- B $\frac{\sin(x + h) - \sin x}{h}$
- C $\frac{\sin x - \sin(x + h)}{h}$
- D $\frac{\sin(x + h) - \sin h}{h}$

6. For all x except -1, 0 and 1,

$\frac{1 - \frac{1}{x}}{x - \frac{1}{x}}$ equals

- A $\frac{1}{x}$
- B $\frac{1}{x + 1}$
- C $\frac{1}{x - 1}$
- D $x + 1$

7. The minimum value of $4 \cos\left[\theta - \frac{\pi}{3}\right]$ is

- A -4
- B 4
- C 1
- D -1

8. A right pyramid has a square base of side 4cm and a perpendicular height of 2cm. The length of a slant edge, in centimetres, is

A $\sqrt{6}$

B $\sqrt{10}$

C $\sqrt{12}$

D $\sqrt{20}$

9. Two similar rectangles have their areas in the ratio 1:4. The longer side of the smaller rectangle and the shorter side of the larger rectangle are each 30cm. The area, in square centimetres, of the larger rectangle is

A 3600

B 1800

C 900

D 450

10. $\frac{2\sqrt{2}}{\sqrt{6} + 2}$ equals

A $\frac{1}{2}(\sqrt{3} - 1)$

B $\sqrt{3} - \sqrt{2}$

C $\sqrt{3} + \sqrt{2}$

D $2(\sqrt{3} - \sqrt{2})$