Geometry Assignment

July 29, 2023

1. If a pole $6m$ high casts a shadow $2\sqrt{3}$ long on the ground,then sun's elevation is:

   (a) $60°$
   (b) $45°$
   (c) $30°$
   (d) $90°$

2. In the given Figure 1,$\triangle ABC \sim \triangle QPR$.If $AC = 6cm$,$BC = 5cm$, $QR = 3cm$ and $PR = x$;then the value of $x$is:

   (a) $3.6cm$
   (b) $2.5cm$
   (c) $10cm$
   (d) $3.2cm$

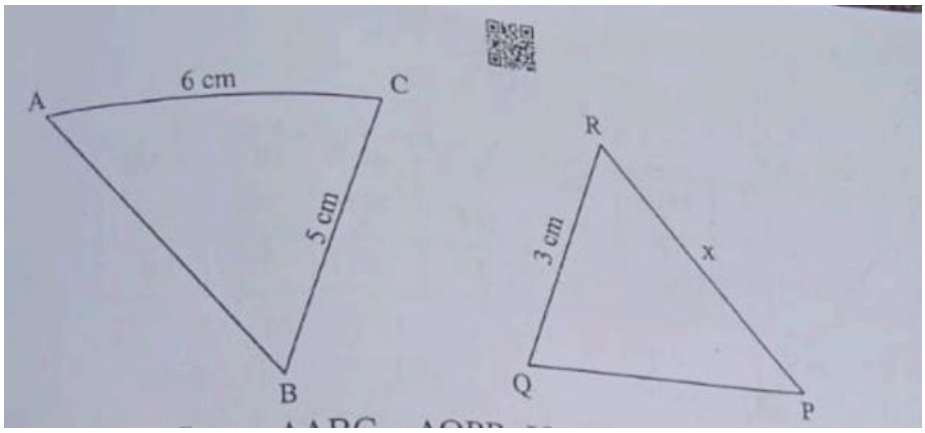

Figure 1

3. What is the area of a semi-circle of diameter 'd'?

   (a) $\frac{1}{16}\pi d^2$

   (b) $\frac{1}{4}\pi d^2$

   (c) $\frac{1}{8}\pi d^2$

   (d) $\frac{1}{2}\pi d^2$

4. In the given Figure 2,$PQ \parallel AC$.If $BP = 4cm$,$AP = 2.4cm$ and $BQ = 5cm$,then length of BC is:

   (a) $8cm$

   (b) $3cm$

   (c) $0.3cm$

   (d) $\frac{25}{3}cm$

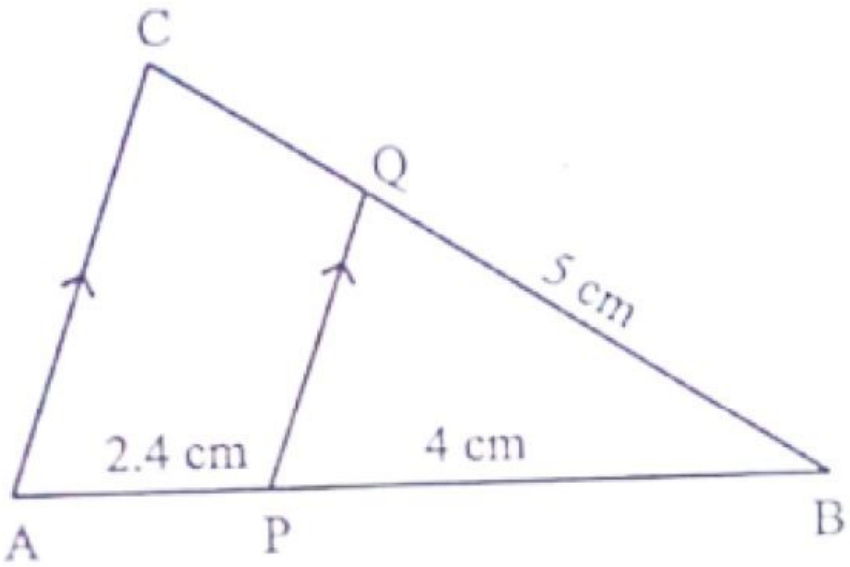

Figure 2

5. In a $\triangle PQR$,N is a point on PR, such that $QN \perp PR$.If $PN \times NR = QN^2$, prove that $\angle PQR = 90°$.

6. In the given Figure 3, $\triangle ABC$ and $\triangle DBC$ are on the same base BC at O,prove that

$$\frac{ar(\triangle ABC)}{ar(\triangle DBC)} = \frac{AO}{DO}. \tag{1}$$

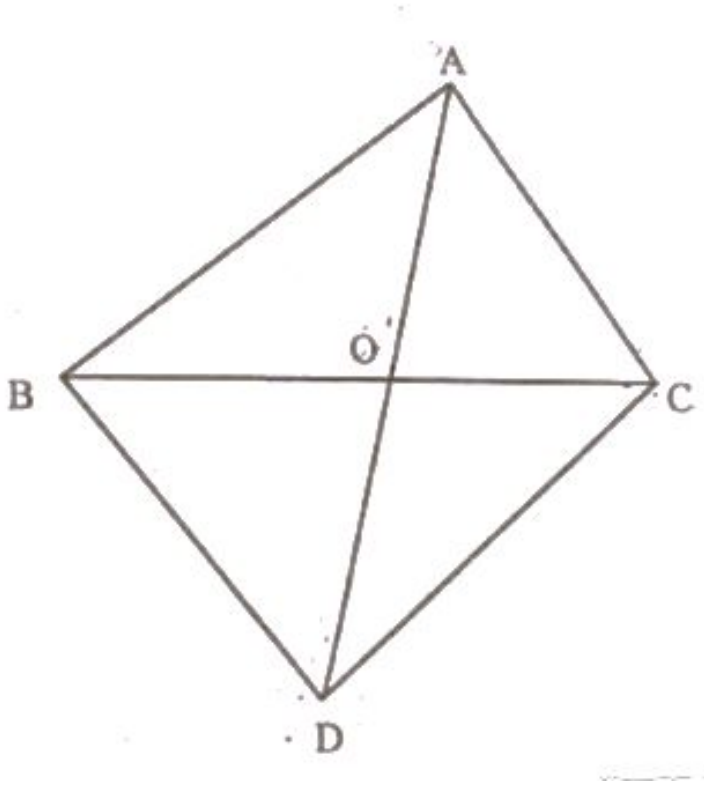

Figure 3

7. A wooden article was made by scooping out a hemisphere from each end of a solid cylinder,as shown Figure 4.If the height of the cylinder is 10cm and its base is of radius 3.5cm,find the total surface area of the article.

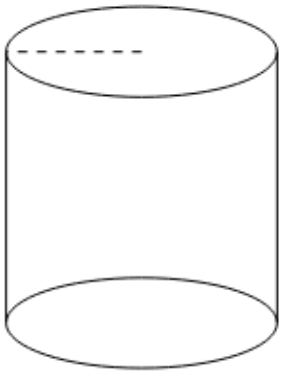

Figure 4