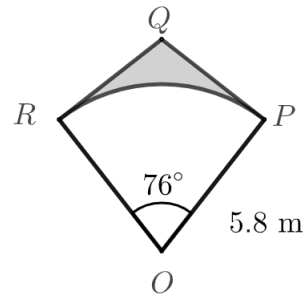


## Question 1

$OPR$  is a sector of a circle with centre  $O$  and radius 5.8 m.  
 $QR$  and  $QP$  are tangent to the circle at points  $R$  and  $P$ .  
Find the shaded area, correct to  
3 significant figures.



## Question 2

The first three terms of a geometric sequence are:  
 $x - 1$ ,  $5$ ,  $2x + 3$ , ...

Find the possible values of  $x$ .

---

## Question 1

$OPR$  is a sector of a circle with centre  $O$  and radius 5.8 m.  
 $QR$  and  $QP$  are tangent to the circle at points  $R$  and  $P$ .

Find the shaded area, correct to  
 3 significant figures.

$ORQ$  and  $OPQ$  are congruent right-angled triangles with base 5.8 m and height

$$5.8 \tan(38^\circ) = 4.5315 \text{ m}$$

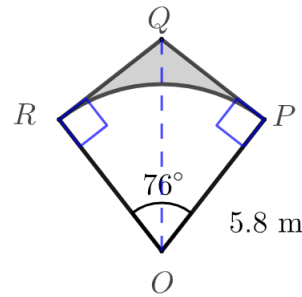
The kite  $OPQR$  therefore has area

$$2 \times \frac{5.8 \times 4.5315}{2} \times = 26.2824 \text{ m}^2.$$

$$\text{Sector } OPR \text{ has area } \frac{76}{360} \times \pi \times 5.8^2$$

$$= 22.3109 \text{ cm}^2$$

$$\text{So shaded area} = 26.2824 - 22.3109 = 3.97 \text{ cm}^2 \text{ (to 3 s.f.)}$$



## Question 2

The first three terms of a geometric sequence are:

$$x - 1, \quad 5, \quad 2x + 3, \dots$$

Find the possible values of  $x$ .

$$\frac{5}{x-1} = \frac{2x+3}{5} \implies 25 = (x-1)(2x+3)$$

$$\implies 25 = 2x^2 + 1x - 3$$

$$\implies 0 = 2x^2 + x - 28$$

$$\text{Solving, we see } x = \frac{7}{2}, x = -4$$