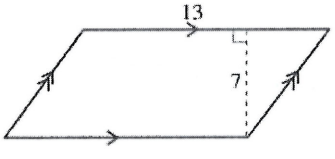
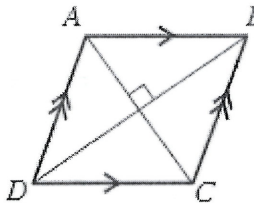
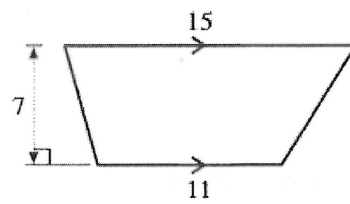
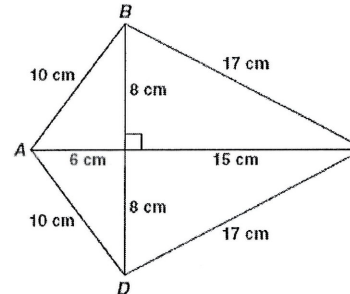
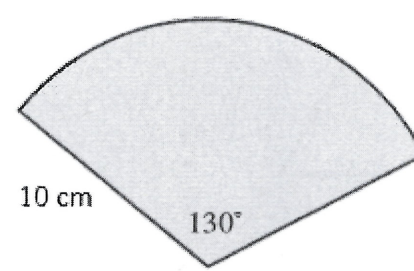
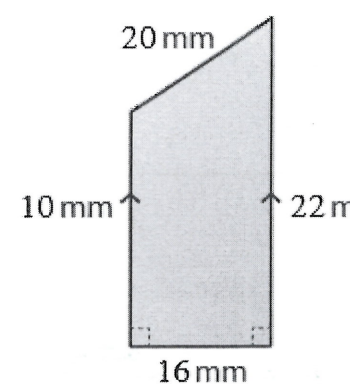


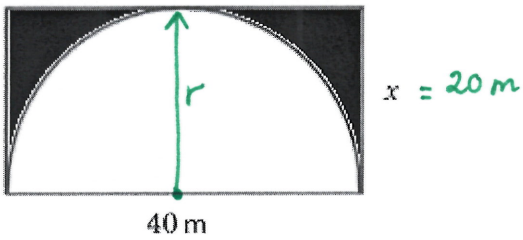
Area Topic Test

Name: _____

1. Find the area of the following shapes:

<p>a)</p> 	<p>b)</p>  <p>$AC = 8$ $BD = 9$</p>	<p>c)</p> 
<p>$A = b \times h$ $= 13 \times 7$ $= 91 \text{ units}^2$</p>	<p>A $= \frac{xy}{2}$ $= \frac{8 \times 9}{2}$ $= 36 \text{ units}^2$</p>	<p>$A = \frac{h(a+b)}{2}$ $= \frac{7(15+11)}{2}$ $= 91 \text{ units}^2$</p>
<p>d)</p> 	<p>e)</p> 	<p>f)</p> 
<p>A $= \frac{xy}{2}$ $= \frac{21 \times 16}{2}$ $= 168 \text{ cm}^2$</p>	<p>A $= \frac{\theta}{360} \times \pi r^2$ $= \frac{130}{360} \times \pi \times 10^2$ $= 113.4 \text{ cm}^2 \text{ (1dp)}$</p>	<p>A $= \frac{h(a+b)}{2}$ $= \frac{16(10+22)}{2}$ $= 256 \text{ mm}^2$</p>

2. The diagram shows a semi-circle inside a rectangle. Find the shaded area.

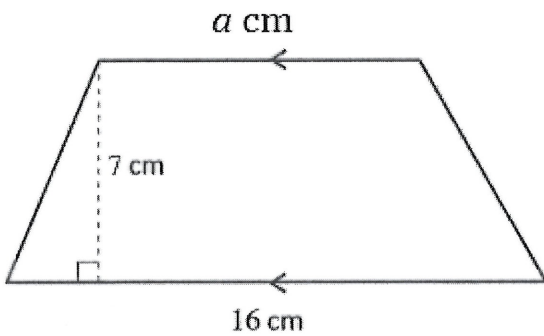


$$d = 40 \text{ m}$$

$$r = 20 \text{ m}$$

$$\begin{aligned} A &= b \times h - \frac{1}{2} \times \pi r^2 \\ &= 40 \times 20 - \frac{1}{2} \times \pi \times 20^2 \\ &= 800 - 200\pi \\ &= 171.7 \text{ m}^2 \end{aligned}$$

3. Find the length of a if the area of the shape is 98 cm^2 .



$$A = \frac{h(a+b)}{2}$$

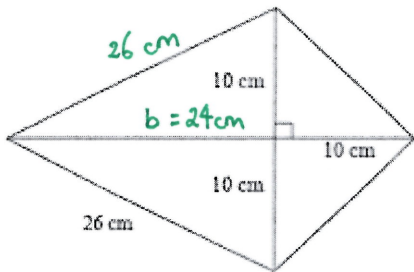
$$2 \times 98 = \frac{7(a+16)}{2} \times 2$$

$$\frac{196}{7} = \frac{7(a+16)}{7}$$

$$\begin{array}{r} 28 = a + 16 \\ -16 \quad -16 \end{array}$$

$$a = 12 \text{ cm}$$

4. Find the area of the kite below.



$$b^2 + 10^2 = 26^2$$

$$b^2 = 576$$

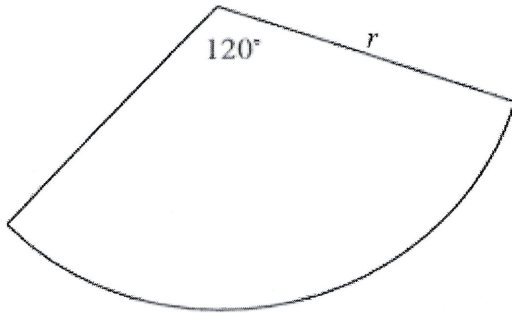
$$b = 24$$

$$A = \frac{xy}{2}$$

$$= \frac{34 \times 20}{2}$$

$$= 340 \text{ cm}^2$$

5. Find the radius of the sector if its area is 214 cm^2 .



$$A = \frac{120}{360} \times \pi r^2$$

$$214 = \frac{1}{3} \times \pi \times r^2$$

$$\frac{214}{\frac{1}{3} \times \pi} = r^2$$

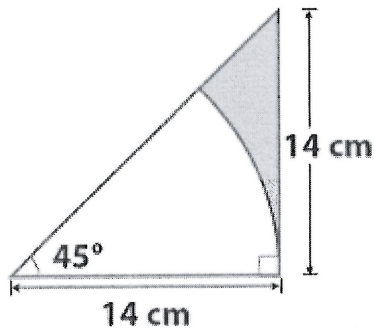
$$r = \sqrt{\frac{214}{\frac{1}{3} \times \pi}} \quad \text{as } r > 0$$

$$r = 14.3 \text{ cm (1 dp)}$$

6. Convert the following units of area:

<p>a) 7.3 m^2 to cm^2</p> $\times 100^2$ $= 730 \text{ cm}^2$	<p>b) 0.0018 km^2 to m^2</p> $\times 1000^2$ $= 1800 \text{ m}^2$	<p>c) 7 mm^2 to cm^2</p> $\div 10^2$ $= 0.07 \text{ cm}^2$
<p>d) 2.5 mm^2 to m^2</p> $\div 10^2 \div 100^2$ $= 0.0000025 \text{ m}^2$	<p>e) 8.35 km^2 to cm^2</p> $\times 1000^2 \times 10^2$ $= 835\,000\,000 \text{ cm}^2$	<p>f) 11 cm^2 to km^2</p> $\div 100^2 \div 1000^2$ $= 0.00000011 \text{ km}^2$

7. Find the shaded area below:



$$\begin{aligned}
 \text{a) } A &= \frac{1}{2} \times b \times h - \frac{\theta}{360} \times \pi r^2 \\
 &= \frac{1}{2} \times 14 \times 14 - \frac{45}{360} \times \pi \times 14^2 \\
 &= 21.03 \text{ cm}^2 \quad (2 \text{ dp})
 \end{aligned}$$

a) in cm^2

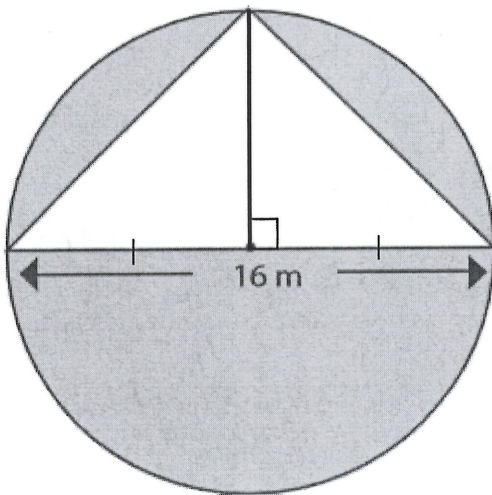
b) in m^2

c) in mm^2

$$\begin{aligned}
 \text{b) } 21.03 \text{ cm}^2 &\xrightarrow{\div 100^2} \text{m}^2 \\
 &= 0.0021 \text{ m}^2 \quad (4 \text{ dp})
 \end{aligned}$$

$$\begin{aligned}
 \text{c) } 21.03 \text{ cm}^2 &\xrightarrow{\times 10^2} \\
 &= 2103.10 \text{ mm}^2 \quad (2 \text{ dp})
 \end{aligned}$$

8. Find the shaded area in km^2 .



$$\begin{aligned}
 A &= \pi r^2 - \frac{1}{2} \times b \times h \\
 &= \pi \times 8^2 - \frac{1}{2} \times 16 \times 8 \\
 &= 137.06 \text{ m}^2 \\
 &= 0.000137 \text{ km}^2 \quad \div 1000^2 \\
 &\quad (6 \text{ dp})
 \end{aligned}$$