1 Work out the area of the triangle.
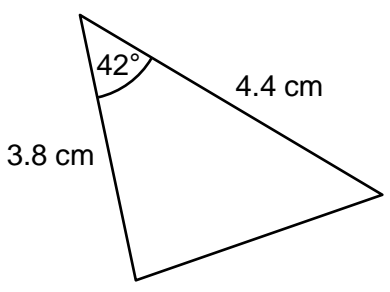
6 cm

83°

11 cm

Not drawn accurately

[2 marks]

$\frac{1}{2} \times 6 \times 11 \times \sin(83)$

Answer _____ 32·8 _____ cm²

2 Work out the area of the triangle.

42°

4.4 cm

3.8 cm

Not drawn accurately

[2 marks]

$\frac{1}{2} \times 3\cdot8 \times 4\cdot4 \times \sin(42)$

Answer _____ 5·6 _____ cm²

4

3 Work out the area of the triangle.

9 cm   162°
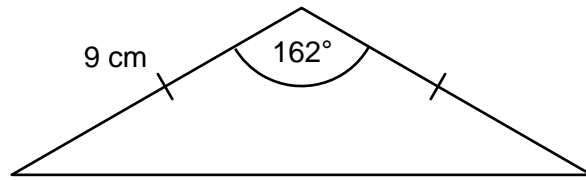
Not drawn accurately

[2 marks]

$$\frac{1}{2} \times 9 \times 9 \times \sin(162)$$

Answer _____ **12·5** _____ cm²

4 Work out the area of the triangle.

10 cm

Not drawn accurately

30°

14 cm
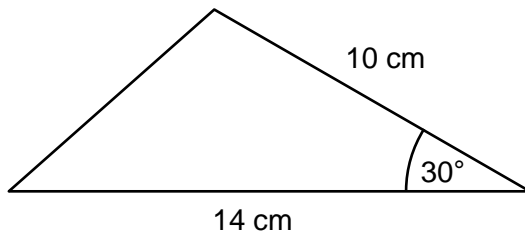
[3 marks]

$$\frac{1}{2} \times 10 \times 14 \times \sin(30)$$

$$= \frac{1}{2} \times 10 \times 14 \times \frac{1}{2}$$

$$= 5 \times 7$$

Answer _____ **35** _____ cm²

5 Work out the area of the triangle.
Give your answer in the form $k\sqrt{3}$, where k is an integer.

13 cm

4 cm

60°

Not drawn
accurately

[3 marks]

$$\tfrac{1}{2} \times 4 \times 13 \times \sin(60)$$
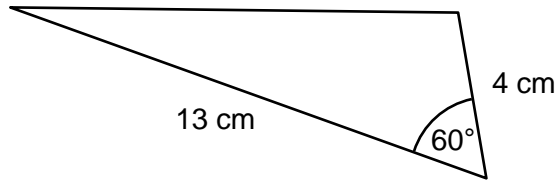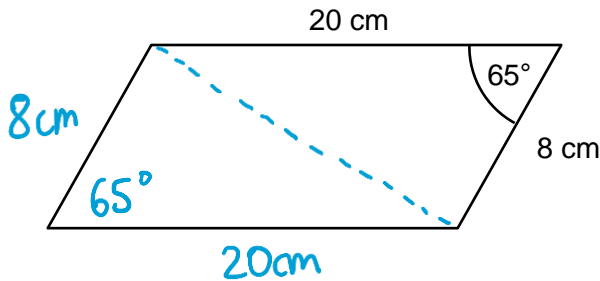$$= \tfrac{1}{2} \times 4 \times 13 \times \frac{\sqrt{3}}{2}$$

$$= \frac{52\sqrt{3}}{4}$$

Answer _____ $13\sqrt{3}$ _____ cm²

6 Work out the area of the parallelogram.
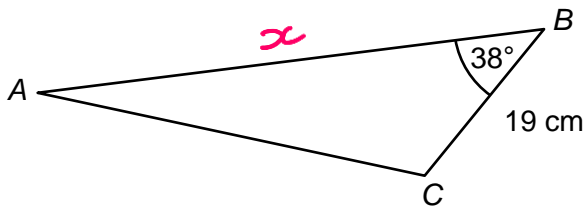

20 cm

8 cm

65°

8 cm

8 cm

65°

20 cm

Not drawn
accurately

[3 marks]

$$\tfrac{1}{2} \times 20 \times 8 \times \sin(65) = 72.50462296$$

$$72.50462296 \times 2 = 145.0092459$$

Answer _____ 145.0 _____ cm²

11

Turn over ▶

7 The area of triangle ABC is 350 cm²

Not drawn accurately

Work out the length of AB. **[3 marks]**

$\times 2 \Big(\ \frac{1}{2} \times 19 \times x \times \sin(38) = 350\ \Big) \times 2$

$19\sin(38)x = 700$

$x = \dfrac{700}{19\sin(38)}$

Answer _____ **59.8** _____ cm

8 The area of triangle ABC is 23 cm²
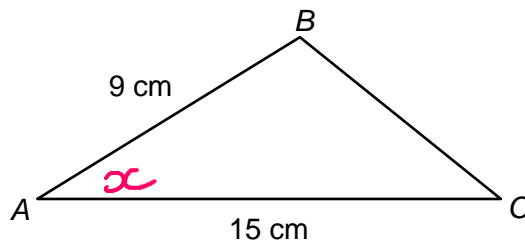
Not drawn accurately

Work out the size of the acute angle, BAC. **[3 marks]**

$\times 2 \Big(\ \frac{1}{2} \times 9 \times 15 \times \sin(x) = 23\ \Big) \times 2$

$135\sin(x) = 46$

$\sin(x) = \dfrac{46}{135}$

$x = \sin^{-1}\left(\dfrac{46}{135}\right)$

Answer _____ **19.9** _____ °

9 *ABC* is a triangle.

20 cm

88°

A 32 *B*
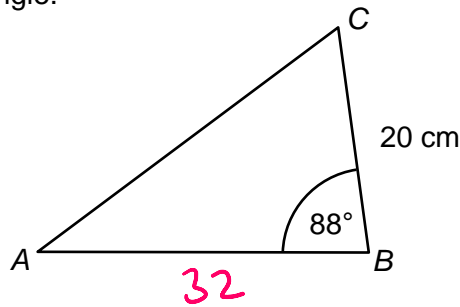
Not drawn
accurately

AB : *BC* = 8 : 5
Work out the area of triangle *ABC*. **[3 marks]**

$20 \div 5 = 4$

$8 \times 4 = 32$

$\frac{1}{2} \times 20 \times 32 \times \sin(88)$

319.8

Answer _____ 319.8 _____ cm²

10 *ABC* is a triangle.

A

x

104°

B 3*x* *C*
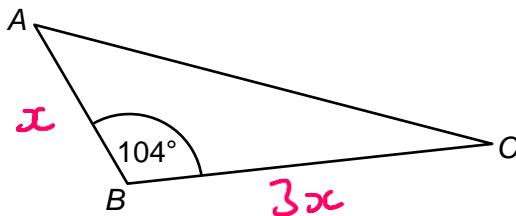
Not drawn
accurately

AB : *BC* = 1 : 3
The area of triangle *ABC* is 123 cm²
Work out the length of *AB*. **[3 marks]**

×2 $\left(\frac{1}{2} \times x \times 3x \times \sin(104) = 123 \right)$ ×2

$3x^2 \sin(104) = 246$

$x^2 = \dfrac{246}{3\sin(104)}$
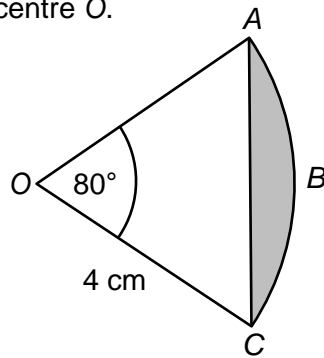
$x = \sqrt{\dfrac{246}{3\sin(104)}}$

9.2

Answer _____ 9.2 _____ cm

12

Turn over ▶

11 *OABC* is a sector with centre *O*.

Not drawn accurately

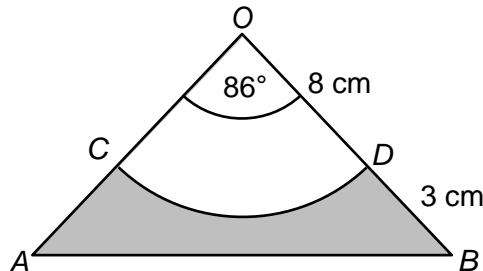Calculate the area of the shaded region.   **[4 marks]**

$$\text{Area of sector} = \frac{80}{360} \times \pi \times 4^2$$

$$= 11.17010721$$

$$\text{Area of triangle} = \frac{1}{2} \times 4 \times 4 \times \sin(80)$$

$$= 7.878462024$$

$$11.17... - 7.87...$$

                                3.3

Answer _____ 3.3 _____ cm²

12 *AOB* is an isosceles triangle with *OA = OB*
COD is a sector, centre *O*.

Work out the area of the shaded region.   **[4 marks]**

$$\text{Area of triangle} = \frac{1}{2} \times 11 \times 11 \times \sin(86)$$

$$= 60.35262504$$

$$\text{Area of sector} = \frac{86}{360} \times \pi \times 8^2$$

$$= 48.03146101$$

$$60.35... - 48.03...$$

                                12.3

Answer _____ 12.3 _____ cm²

13   *ABCDEF* is a triangular prism.
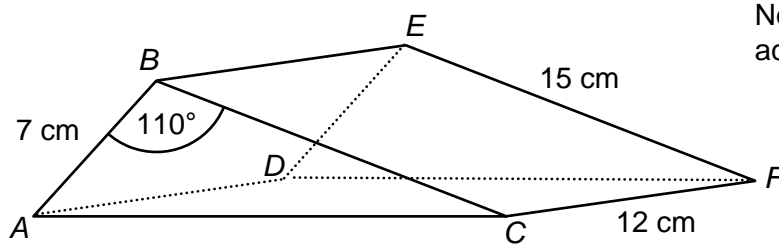
Not drawn accurately

The prism has a mass of 0.5 kg.
Calculate the density of the prism in g/cm³
Give your answer to 3 significant figures.

[5 marks]

Area of triangle = ½ × 7 × 15 × sin(110)
= 49.33386259

Volume of prism = 49.3... × 12
= 592.0063511

Density = $\dfrac{500g}{592.0...cm^3}$

= 0.8445855337 g/cm³

Answer   0.845   g/cm³

13

Turn over ▶

14 *ABCO* is a sector with centre *O*.

A   14 cm   C

8cm   *x*   *8cm*

↓ 122·0...

O

360 - 122·0...

= 237·9100487

B
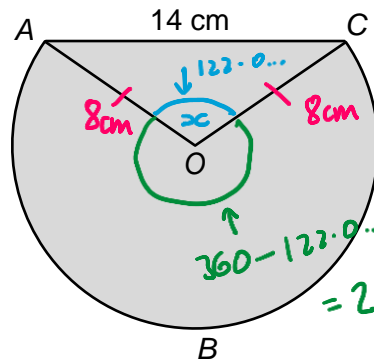
Not drawn
accurately

The perimeter of triangle *AOC* is 30 cm.
Calculate the shaded area.

[6 marks]

$$30 - 14 = 16 \qquad 16 \div 2 = 8$$

$$\cos(x) = \frac{8^2 + 8^2 - 14^2}{2 \times 8 \times 8}$$

$$\cos(x) = -0.53125$$

$$x = \cos^{-1}(-0.53125)$$

$$x = 122.0899513$$

$$\text{Area of triangle} = \frac{1}{2} \times 8 \times 8 \times \sin(122.0...)$$

$$= 27.11088342$$

$$\text{Area of sector} = \frac{237.9...}{360} \times \pi \times 8^2$$

$$= 132.8740376$$

$$27.11... + 132.87... = 159.984921$$

Answer _____ 160.0 _____ cm²

6