AREA

Scale
— 1cm

Square: 4cm × 4cm
Name Square
Area $4 \times 4 = 16 cm^2$
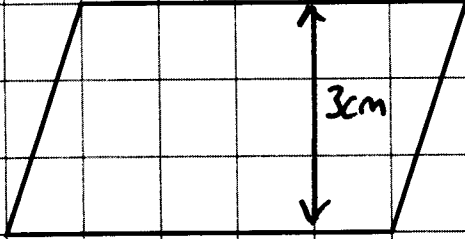
Parallelogram: 5cm, 3cm
Name Parallelogram
Area $5 \times 3 = 15 cm^2$
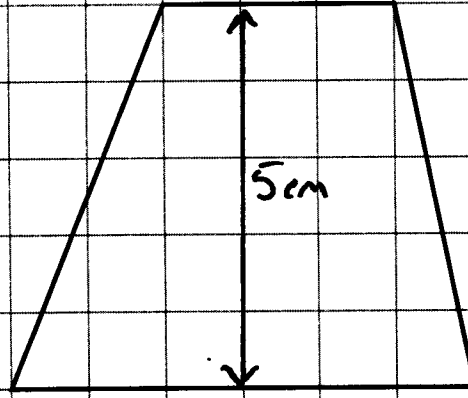
Trapezium: 3cm (top), 5cm (height), 6cm (bottom)
Name Trapezium
Area $(3 + 6) \times 5 \div 2$
$= 45 \div 2 = 22.5 cm^2$
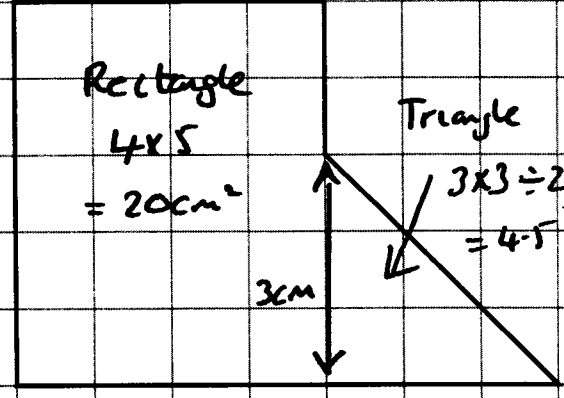
Compound Shape: 4cm, 5cm, 3cm
Rectangle $4 \times 5 = 20 cm^2$
Triangle $3 \times 3 \div 2 = 4.5$
Name Compound Shape
Area $20 + 4.5 = 24.5 cm^2$
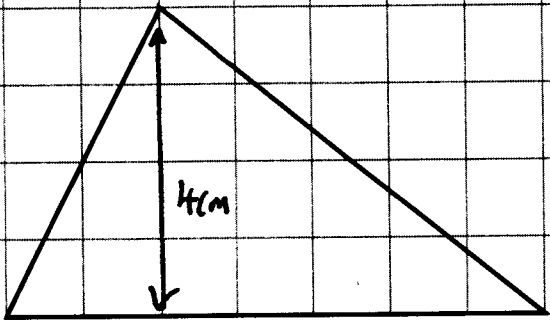
Triangle: 7cm base, 4cm height
Name Triangle
Area $7 \times 4 \div 2 = 14 cm^2$
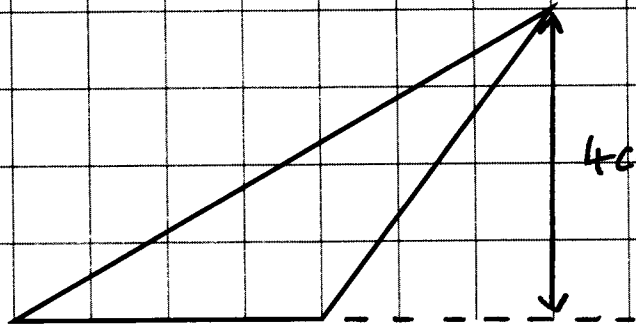
Triangle: 4cm, 4cm
Name Triangle
Area $4 \times 4 \div 2 = 8 cm^2$
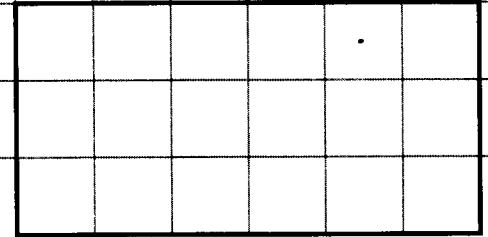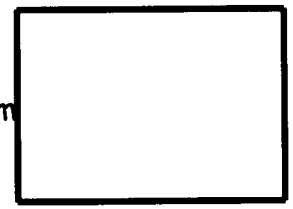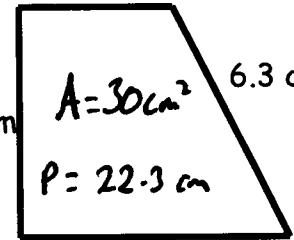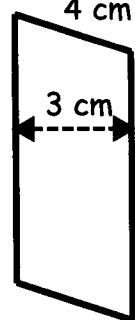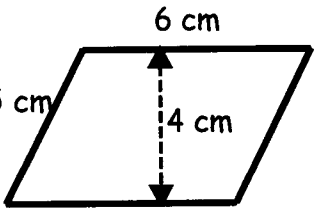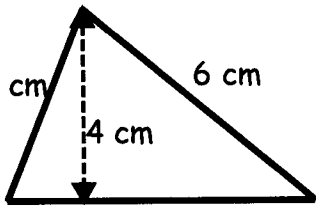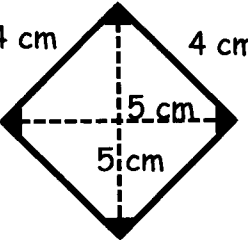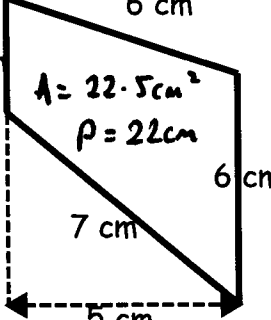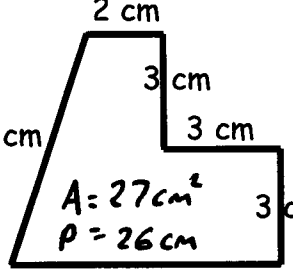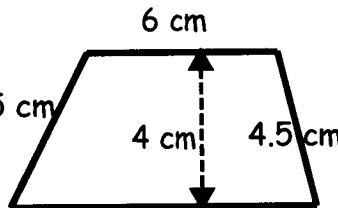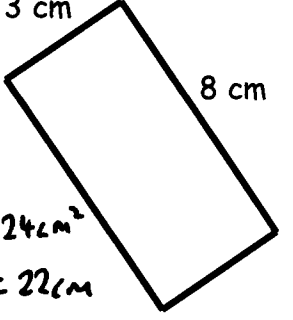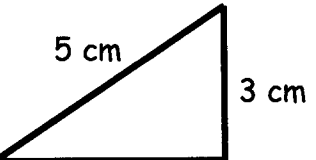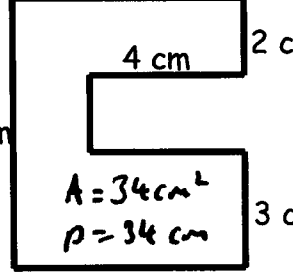
Rectangle: 6cm, 3cm
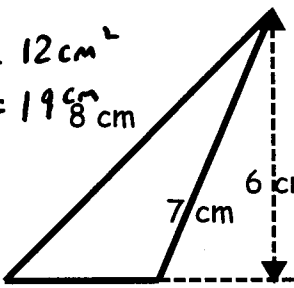Name Rectangle
Area $3 \times 6 = 18 cm^2$

①

A	B	C	D	1) Cut out all the cards
7 cm 5 cm A= 35cm² P= 24cm	4 cm 6 cm A=30cm² 6.3 cm P= 22.3 cm 6 cm	4 cm 3 cm 7 cm A=21cm² P=22cm	A= 12cm² P= 19 8cm 7 cm 6 cm 4 cm	2) Sort the cards according to their shape 3) Stick the cards in groups in your book 4) By the side of each shape work out its area and perimeter

E	F	G	H	I
6 cm 5 cm 4 cm A= 24 cm² P= 22 cm	5 cm 6 cm 4 cm 7 cm A= 14cm² P= 18cm	4 cm 4 cm 5 cm 5 cm A= 16 cm² P=16cm	6 cm 3 cm A= 22.5cm² P= 22cm 6 cm 7 cm 5 cm	2 cm 3 cm 8 cm 3 cm A= 27cm² P= 26cm 3 cm 7 cm

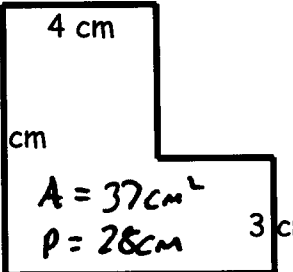| J	K	L	M	N
6 cm 5 cm 4 cm 4.5 cm 9 cm A= 30cm² P= 24.5cm	4 cm 7 cm A = 37cm² P= 28cm 3cm 7 cm	3 cm 8 cm A=24cm² P= 22cm	5 cm 3 cm 4 cm A= 6 cm² P= 12cm	4 cm 2 cm 7 cm A=34cm² P= 34 cm 3 cm 6 cm

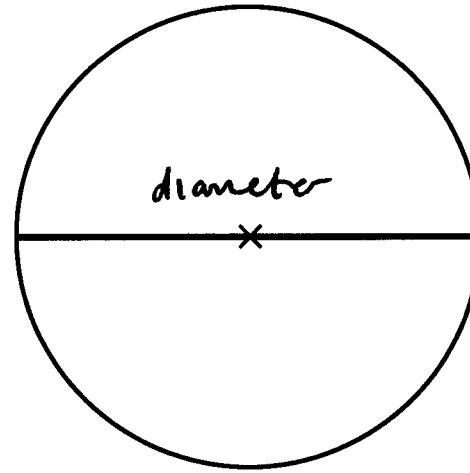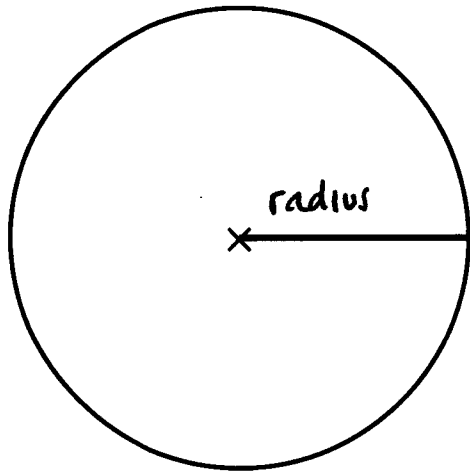| Area of square/rectangle	Area of triangle	Area of parallelogram	Area of trapezium	Area of compound shape
base x height	base x height ÷ 2	base x height	add parallel sides x height ÷ 2	Split into shapes

Shape   A,G,L   D,F,M   C,E   B,H,J   I,K,N

②

Area and Circumference of a Circle

radius

diameter

$\pi = 3.142$ (pi a Greek letter)

On your calculator shift $x10^X$

Area $= \pi \times r^2$

Circumference $= \pi \times d$

5 cm

12 cm

7 cm

20 cm
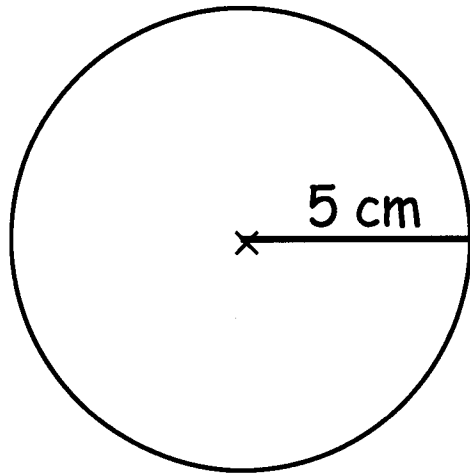
$A = \pi \times 5^2 = 78.5 \text{ cm}^2$
$C = \pi \times 10 = 31.4 \text{ cm}$
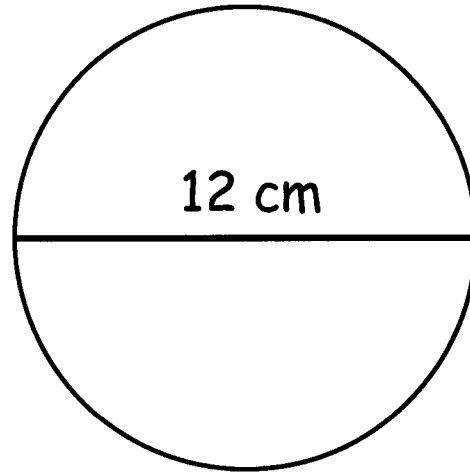
$A = \pi \times 6^2 = 113.1 \text{ cm}^2$
$C = \pi \times 12 = 37.7 \text{ cm}$
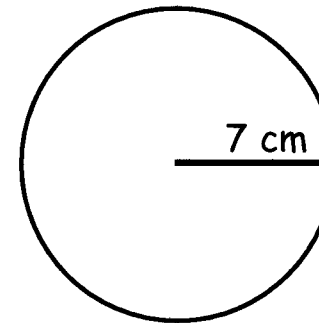
$A = \pi \times 7^2 = 153.9 \text{ cm}^2$
$C = \pi \times 14 = 44.0 \text{ cm}$

$A = \pi \times 10^2 = 314.2 \text{ cm}^2$
$C = \pi \times 20 = 62.8 \text{ cm}$

③

Find the area and perimeter of each shape

Scale
___
1cm

$r = 3cm$
$d = 6cm$

$A = \pi \times 3^2 \div 28.3 \, cm^2$

$C = \pi \times 6 = 18.8 \, cm$

$r = 3cm$
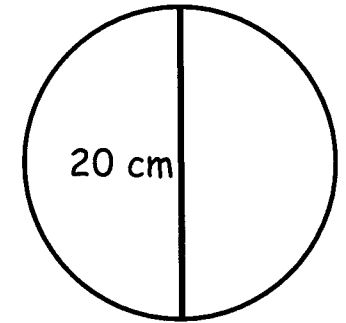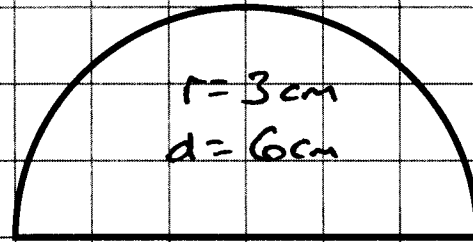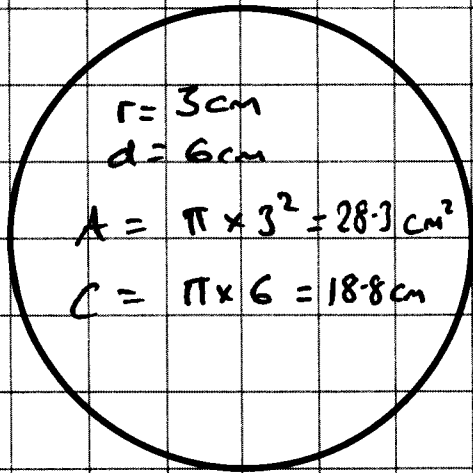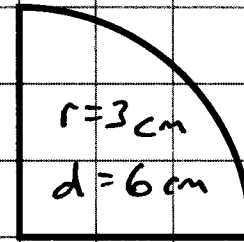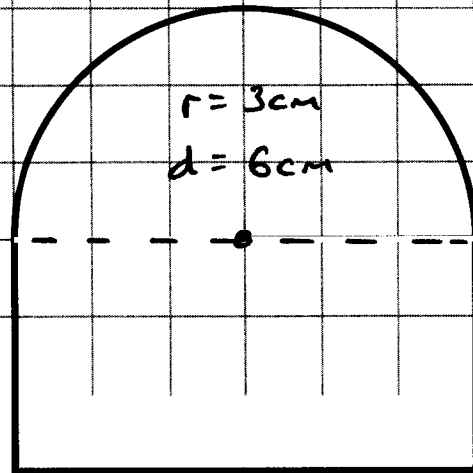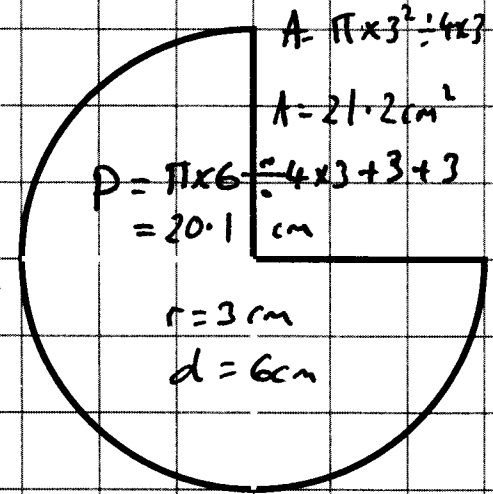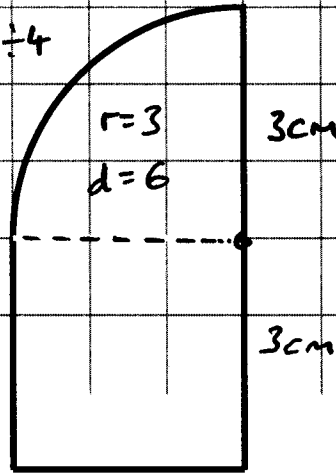$d = 6cm$

$A = \pi \times 3^2 \div 2 = 14.1 cm^2$

$P = \pi \times 6 \div 2 + 6$

$= 15.4 \, cm$

$r = 3cm$
$d = 6cm$

$A = \pi \times 3^2 \div 4 = 7.1 cm^2$

$P = \pi \times 6 \div 4 + 3 + 3$

$= 10.7 \, cm$

$A = \pi \times 3^2 \div 4 \times 3$

$A = 21.2 cm^2$

$P = \pi \times 6 \div 4 \times 3 + 3 + 3$

$= 20.1 \, cm$

$r = 3cm$
$d = 6cm$

$r = 3cm$
$d = 6cm$

Area

$\frac{1}{4}$ of a = $\pi \times 3^2 \div 4$
circle

Square = 3×3

TOTAL = $16.1 cm^2$

$r = 3$
$d = 6$

3cm

The shaded area only   6cm

6cm

3cm   3cm   3cm   3cm

6cm   3cm

Semicircle   Area = $\pi \times 3^2 \div 2 = 14.1 cm^2$
rectangle   Area = $3 \times 6 = 18 cm^2$

TOTAL area = $14.1 + 18 = 32.1 cm^2$

Perimeter = $3 + 6 + 3 + \pi \times 6 \div 2 = 21.4 cm$

Perimeter
= $3 + 3 + 3 + 3 + \pi \times 6 \div 4$

④ = $16.7 \, cm$
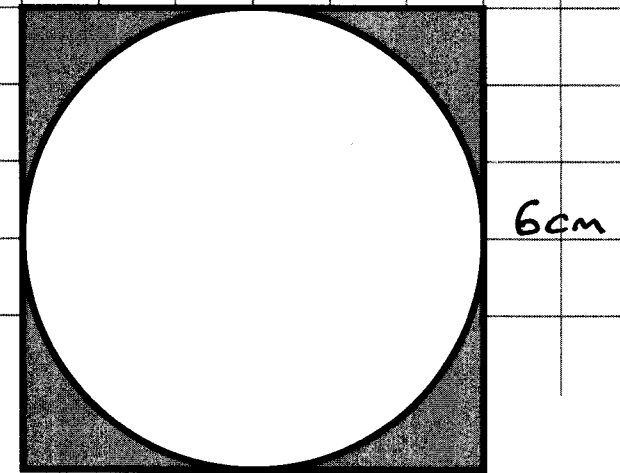
Square Area = $6 \times 6 = 36 cm^2$

Circle A = $\pi \times 3^2 \, 28.3 cm^2$

Shaded area = $36 - 28.3$
$= 7.7 cm^2$

1) Find the shaded area

8 cm

6 cm
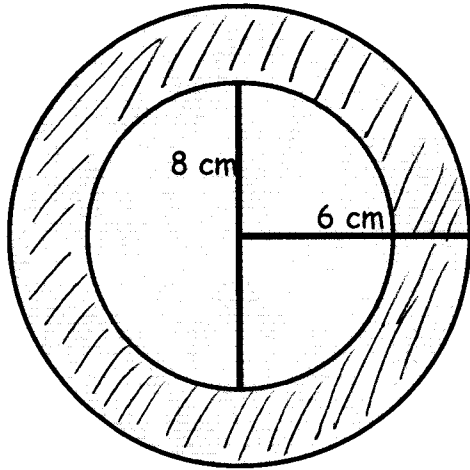
Area of large circle − Area of small circle

$= \pi \times 6^2 - \pi \times 4^2$

$= 62.8 \text{ cm}^2$

2) Find the shaded area

20 cm

12 cm

4 cm

Area of rectangle − Area of circle.

$= 12 \times 20 - \pi \times 4^2$

$= 189.7 \text{ cm}^2$

3) Find the area

3 cm

6 cm

9 cm
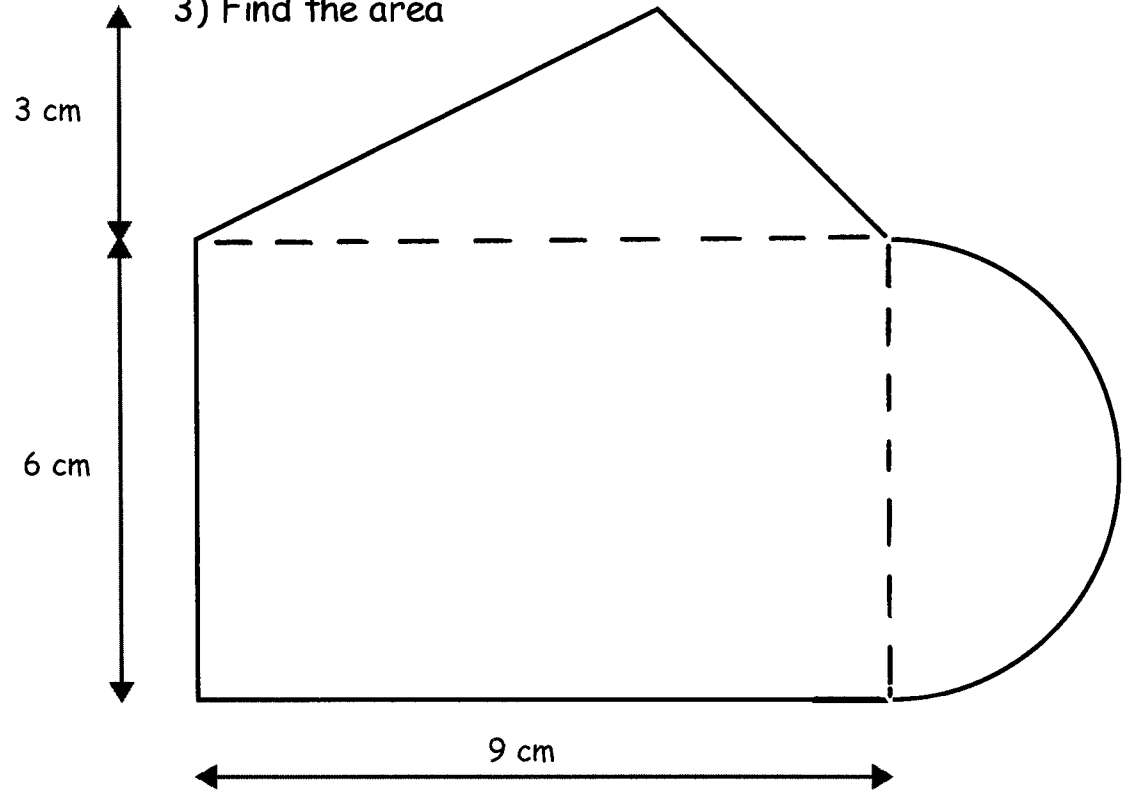
Triangle	$9 \times 3 \div 2$	$= 13.5 \text{ cm}^2$
rectangle	6×9	$= 54 \text{ cm}^2$
semicircle	$\pi \times 3^2 \div 2$	$= 14.1 \text{ cm}^2$

$\text{TOTAL} = 81.6 \text{ cm}^2$

Ⓢ

Find the area and perimeter of these shapes. The shapes are drawn on a 1 cm² grid

$Area = \dfrac{120}{360} \times \pi \times 5^2 = 26.2 cm^2$

1

$r = 4$
$d = 8$

$A = \pi \times 4^2 = 50.3 cm^2$
$C = \pi \times 8 = 25.1 cm$

2

$r = 3$
$d = 6$

$Area = \pi \times 3^2 \div 2 = 14.1 cm^2$
$P = \pi \times 6 \div 2 + 6 = 15.4 cm$

3

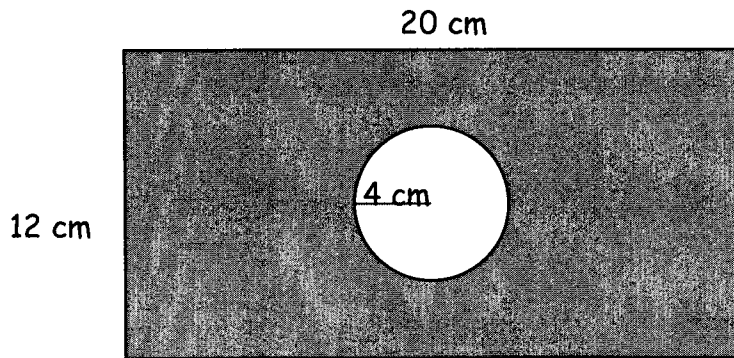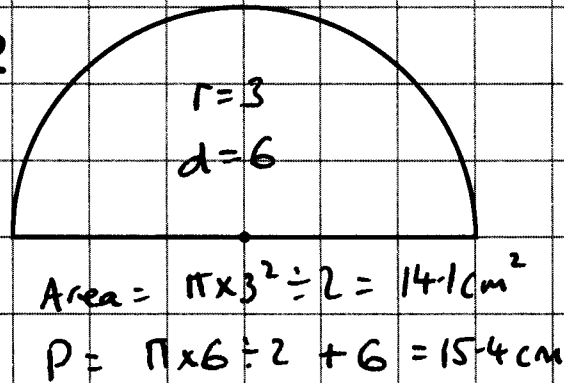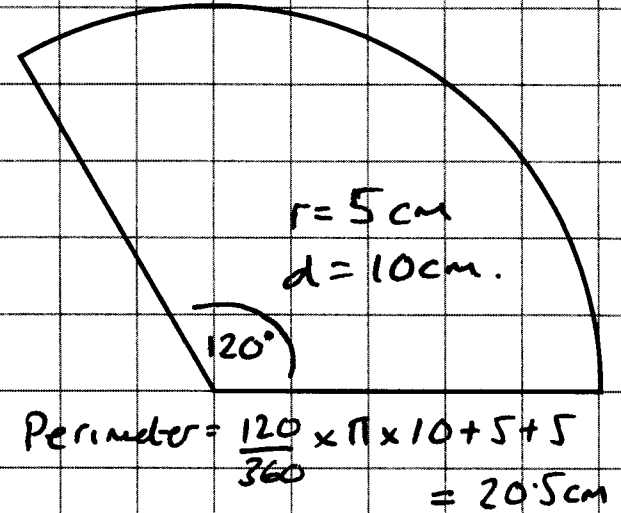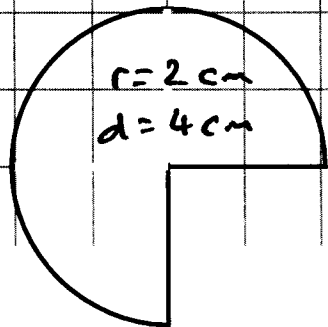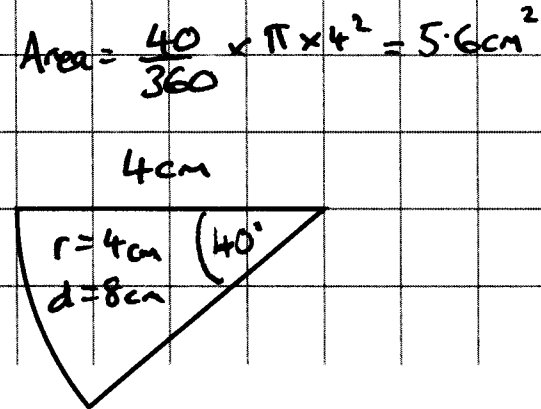$r = 5 cm$
$d = 10 cm.$

$120°$

$Perimeter = \dfrac{120}{360} \times \pi \times 10 + 5 + 5$
$= 20.5 cm$

$Area = \dfrac{40}{360} \times \pi \times 4^2 = 5.6 cm^2$

4

$r = 2 cm$
$d = 4 cm$
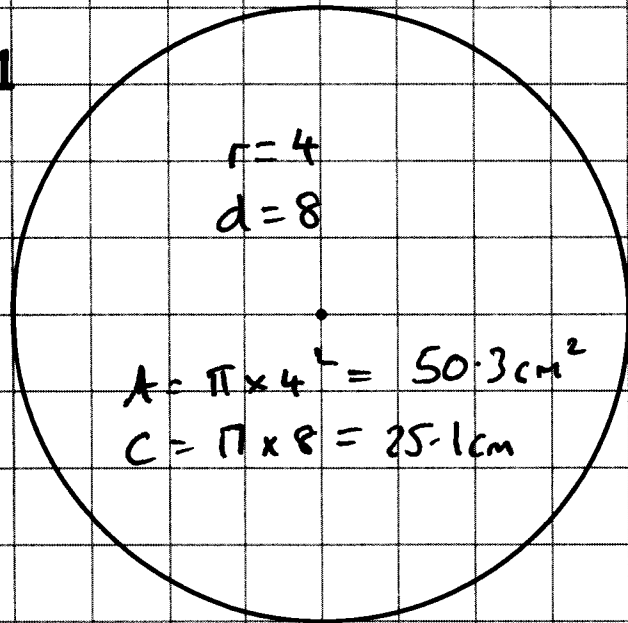
$A = \pi \times 2^2 \div 4 \times 3 = 9.4 cm^2$

$P = \pi \times 4 \div 4 \times 3 + 2 + 2 = 13.4 cm$

5

$4 cm$

$r = 4 cm \quad (40°$
$d = 8 cm$

$Perimeter = \dfrac{40}{360} \times \pi \times 8 + 4 + 4$

$= 10.8 cm$

6

$260°$

$r = 4 cm$
$d = 8 cm$

$Area = \dfrac{260 \times \pi \times 4^2}{360}$
$= 36.3 cm^2$

$Perimeter = \dfrac{260 \times \pi \times 8 + 4 + 4}{360}$
$= 26.2 cm$

⑥