

A Cartesian plane: Finding coordinates from quadratic equations

Complete the table of values:

1 $y = 3x^2$

x	-2	-1	0	1	2
y					

3 $y = -(x-1)^2$

x	-2	-1	0	1	2
y					

2 $y = -x^2$

x	-2	-1	0	1	2
y					

4 $y = (x+3)^2$

x	-3	-2	-1	0	1
y					

B Cartesian plane: Plotting parabolas

Draw a set of axes so that the x -axis goes from -3 to $+2$, and the y -axis goes from -10 to $+16$. Use the results of the tables in set A above to plot all the parabolas on the same set of axes.

1 $y = 3x^2$

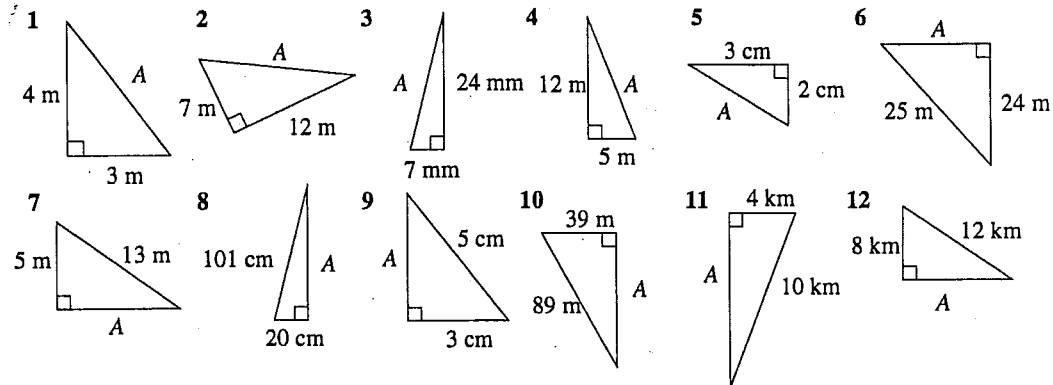
2 $y = -x^2$

3 $y = -(x-1)^2$

4 $y = (x+3)^2$

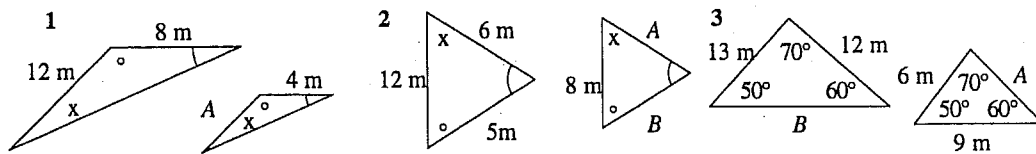
C Measurement: Pythagoras' theorem

Find the missing lengths. Give lengths to 2 decimal places where necessary.



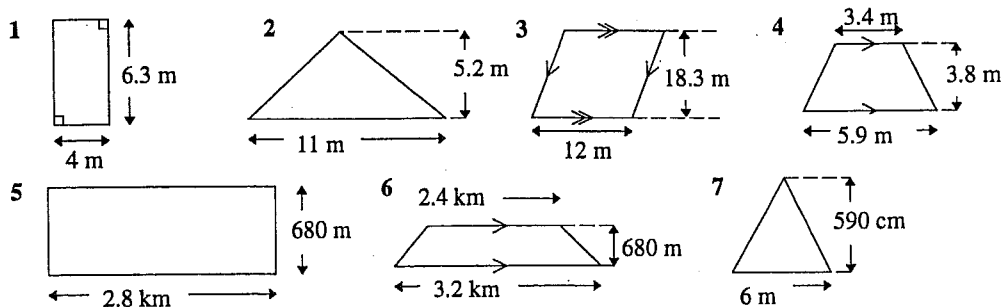
D Measurement: Similar triangles

Use similar triangles to find the labelled signs:



E Measurement: Area of shapes with straight sides

Find the areas of these shapes:



Worksheet 21

A 1 $y = 3x^2$

x	-2	-1	0	1	2
y	12	3	0	3	12

2 $y = -x^2$

x	-2	-1	0	1	2
y	-4	-1	0	-1	-4

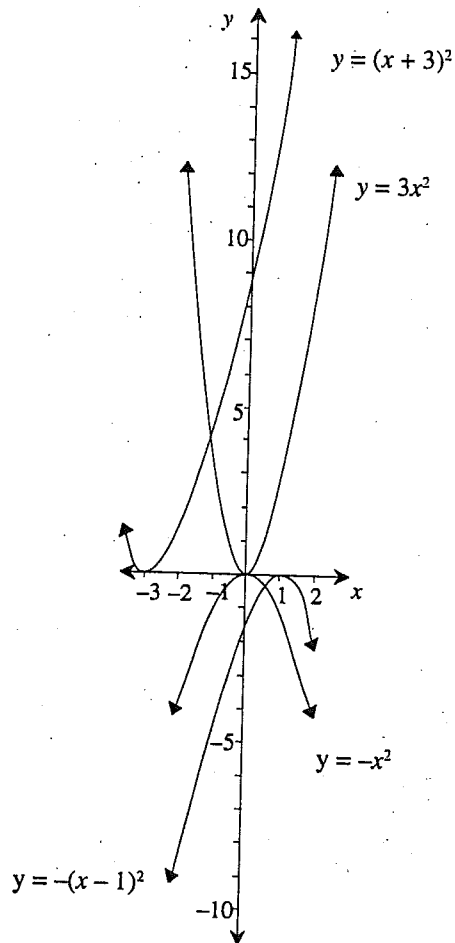
3 $y = -(x-1)^2$

x	-2	-1	0	1	2
y	-9	-4	-1	0	-1

4 $y = (x+3)^2$

x	-3	-2	-1	0	1
y	0	1	4	9	16

B



- C 1 5 m 2 13.89 m 3 25 mm 4 13 m
 5 3.61 cm 6 7 m 7 12 m 8 99 cm
 9 4 cm 10 80 m 11 9.17 km 12 8.94 km

- D 1 $A = 6$ m 2 $A = 4$ m, $B = 3\frac{1}{3}$ m
 3 $A = 5.54$ m, $B = 19.5$ m

- E 1 25.2 m² 2 28.6 m² 3 219.6 m²
 4 17.67 m² 5 1 904 000 m² or 1.904 km²
 6 1 904 000 m² or 1.904 km²
 7 17.7 m² or 177 000 cm²