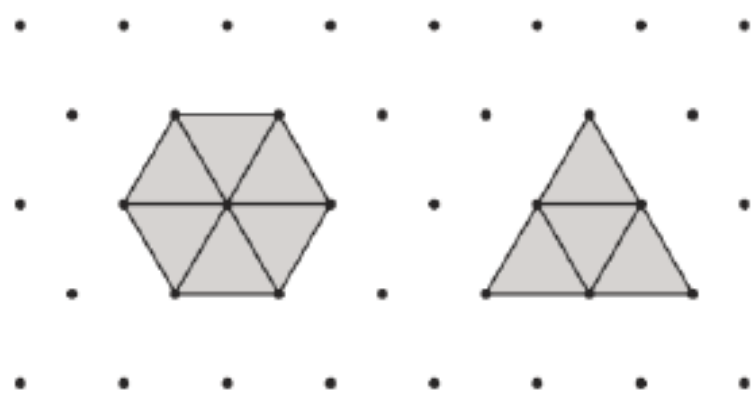Wednesday

HALF WAY TO THE

Weekend

Look at the hexagon and the triangle.
Do the hexagon and the triangle have the same area? Explain your answer.
Do the hexagon and the triangle have the same perimeter? Explain your answer.

You cut rectangle A and arrange the pieces to make a new shape B, like this:
Which statements are true?
- The area of A is greater than the area of B.
- The area of A is less than the area of B.
- Both areas are the same.
- The perimeter of A is greater than the perimeter of B.
- The perimeter of A is less than the perimeter of B.
- Both perimeters are the same.

A

B
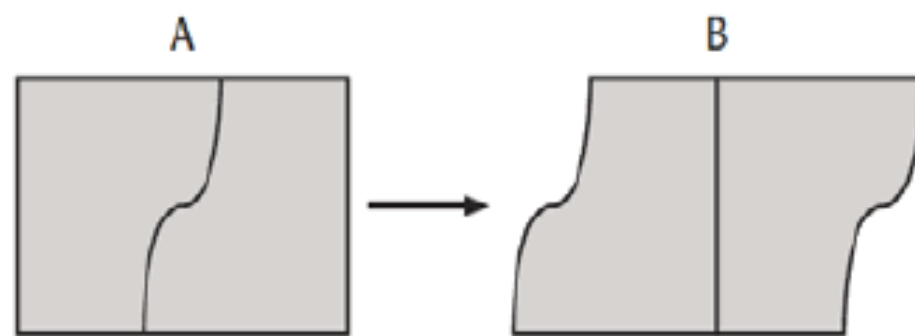
Count forwards and backwards in steps.

5.6 = 5.60 = 5.600

Write the next 3 numbers
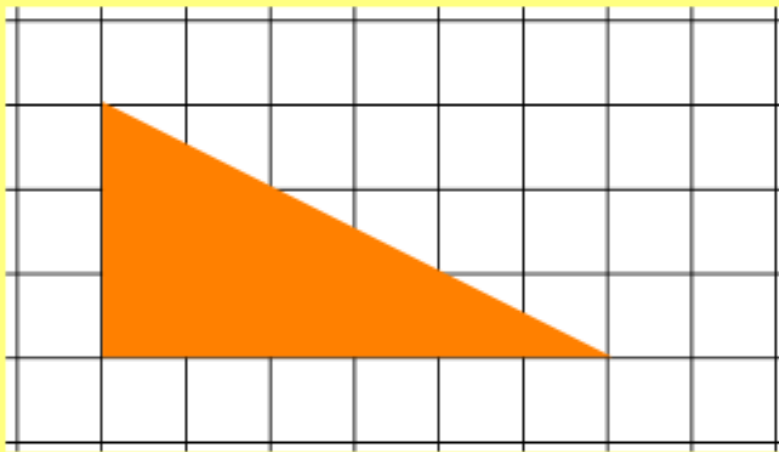
A. 4.2 - 0.1

B. 6.79 + 0.1

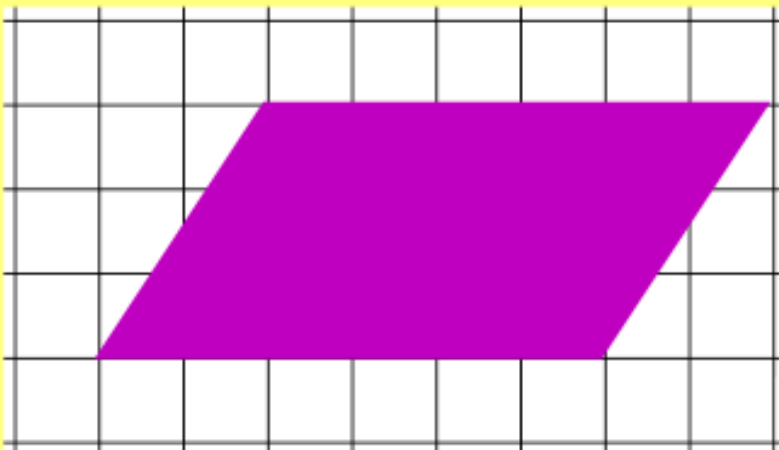C. 0.001 + 3.478

D. 5.802 - 0.001

E. 17.02 - 0.01

F. 53.08 - 0.001

L.O. Calculate the area of triangles and parallelograms.

How can we calculate the area of these shapes?

Draw these shapes onto cm square paper. Cut them and make them into oblongs.
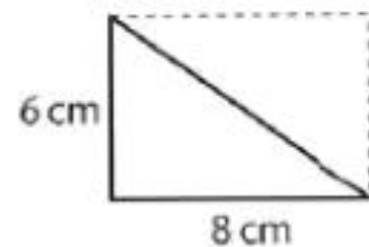
L.O. Calculate the area of triangles and parallelograms.

The area of a triangle is half the base times the height.

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

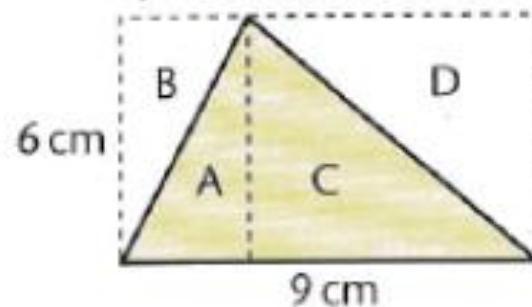Why this formula works is apparent when considering a right-angled triangle.

Example 1

Area of rectangle

$(8 \times 6)\,cm^2 = 48\,cm^2$

Area of triangle

$\frac{(8 \times 6)}{2}\,cm^2 = \frac{48}{2}\,cm^2$

$= 24\,cm^2$

Considering a scalene triangle as two right-angled triangles, it is apparent why the formula applies to all triangles.
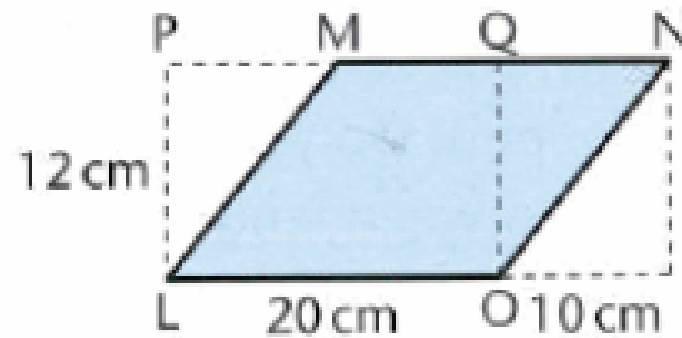
Example 2

The areas of triangles:

A and B are equal

C and D are equal.

Therefore, the yellow triangle's area is half that of the rectangle or half the triangle's base times its height.

$$Area = \frac{(6 \times 9)}{2}\,cm^2 = \frac{54}{2}\,cm^2 = 27\,cm^2$$

L.O. Calculate the area of triangles and parallelograms.

The area of a parallelogram is the base times the height. ($A = bh$)

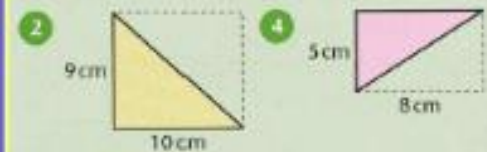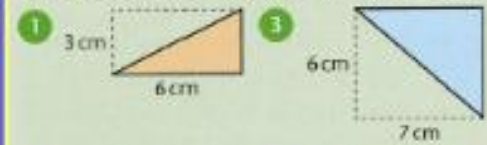The areas of triangles LPM and OQN are equal.

Therefore, the area of the parallelogram equals that of rectangle LPQO or the base of the parallelogram times its height.
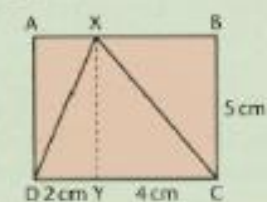
$$\text{Area} = (20 \times 12)\,cm^2 = 240\,cm^2$$
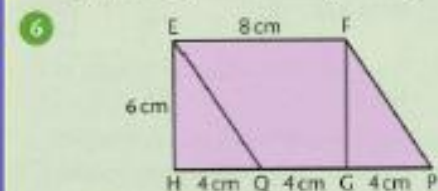
A

All lengths are in cm. Find the area of:
a) the rectangle b) the coloured triangle.

1 3 cm, 6 cm

3 6 cm, 7 cm

2 9 cm, 10 cm

4 5 cm, 8 cm

5 Find the area of:

A   X   B
5 cm
D 2 cm Y   4 cm   C

a) rectangle AXYD   b) triangle DXY
c) rectangle XBCY   d) triangle XCY
e) rectangle ABCD   f) triangle DXC
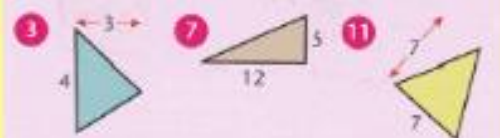
6
E   8 cm   F
6 cm
H 4 cm Q 4 cm G 4 cm P

Find the area of:
a) rectangle EFGH
b) triangle EQH
c) triangle FPG
d) parallelogram EFPQ.

Find the area of each triangle.

7 10 cm, 8 cm

8 7 cm, 12 cm
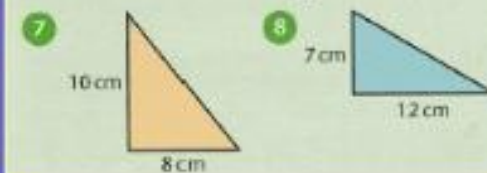
B

All lengths are in centimetres.
Find the area of each triangle.

1 7, 5

5 4, 6

9 20, 20

2 9, 6

6 11, 9

10 5, 4

3 3, 4

7 5, 12

11 7, 7

4 8, 7

8 9, 4

12 11, 12

Find the area of each parallelogram.

13 3, 7

17 8, 6

14 5, 14

18 12, 4

15 10, 8

19 7, 9

16 6, 11

20 9, 15

C

All lengths are in centimetres.
Find the total area of each coloured shape.

1 2·5, 4, 5

6 10, 10, 10

2 4, 2, 3, 9

7 4, 5, 7·5

3 2, 3·5, 4

8 5·5, 11, 4

4 4, 4, 4, 4, 4, 4

9 18, 20, 8

5 5, 7, 6, 4·5

10 5, 7, 7·5
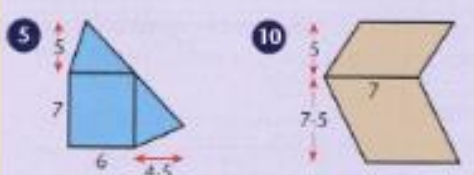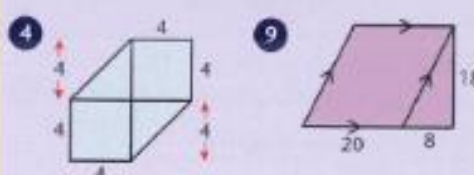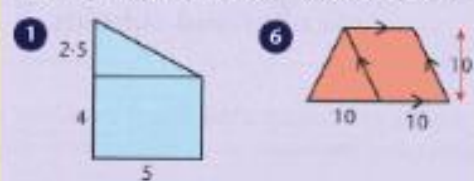
Work out the area of the pink triangle.

11 5, 4, 6, 9, 3, 9

12 15, 10, 15, 5, 7, 8

11 30, 10, 6
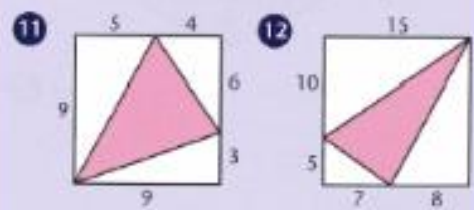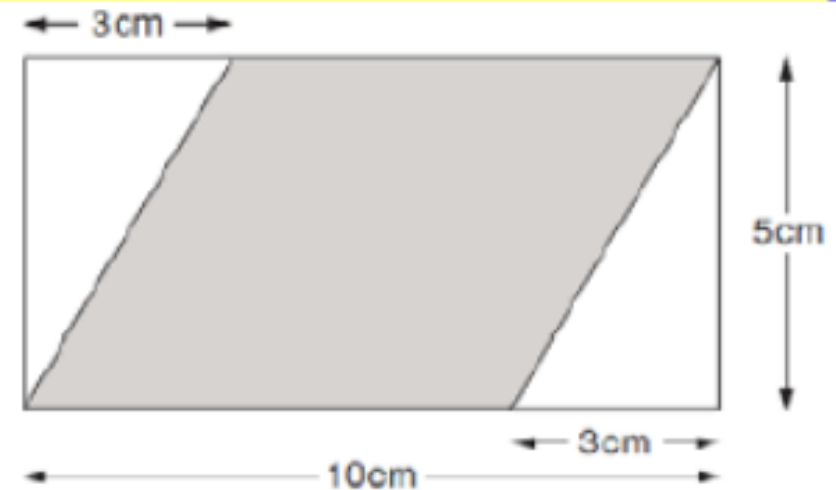
This is a centimetre grid. Draw 3 more lines to make a parallelogram with an area of 10 cm^2.

The area of a triangle is 12cm^2.
What are the possible lengths of base and height?
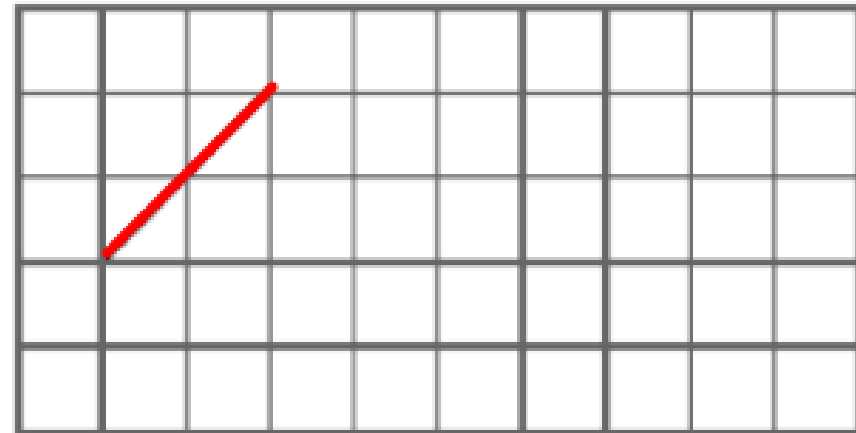
The diagram shows a shaded parallelogram drawn inside a rectangle.
What is the area of the shaded parallelogram?

3cm

5cm

3cm

10cm

Page 100

A

1 a) 18 cm²	**3 a)** 42 cm²	**5 a)** 10 cm²	**6 a)** 48 cm²
b) 9 cm²	**b)** 21 cm²	**b)** 5 cm²	**b)** 12 cm²
2 a) 90 cm²	**4 a)** 40 cm²	**c)** 20 cm²	**c)** 12 cm²
b) 45 cm²	**b)** 20 cm²	**d)** 10 cm²	**d)** 48 cm²
		e) 30 cm²	
		f) 15 cm²	

7 40 cm²

8 42 cm²

Page 101

B

1 17·5 cm²	**5** 12 cm²	**9** 200 cm²	**13** 21 cm²	**17** 48 cm²
2 27 cm²	**6** 49·5 cm²	**10** 10 cm²	**14** 70 cm²	**18** 48 cm²
3 6 cm²	**7** 30 cm²	**11** 24·5 cm²	**15** 80 cm²	**19** 63 cm²
4 28 cm²	**8** 18 cm²	**12** 66 cm²	**16** 66 cm²	**20** 135 cm²

C

1 26·25 cm²	**4** 48 cm²	**7** 67·5 cm²	**10** 87·5 cm²	**13** 150 cm²
2 49·5 cm²	**5** 72·75 cm²	**8** 82·5 cm²	**11** 33 cm²	
3 11 cm²	**6** 150 cm²	**9** 432 cm²	**12** 72·5 cm²	