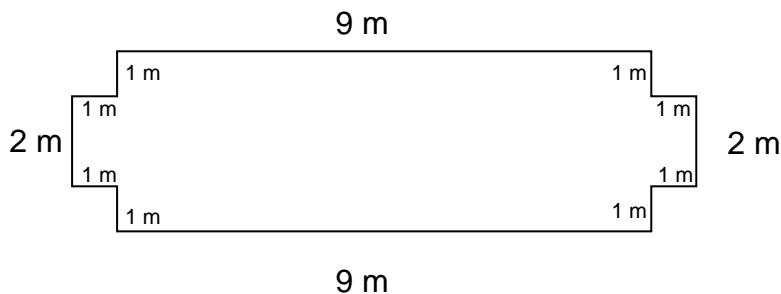# WelTec/Whitireia Mathematics Series
Basic Formulas

Formulas show general rules or relationships. Usually formulas have either words or letters in them to stand for numbers. The first example will introduce perimeters of shapes and formulas to you.

Example 1

Look at this shape. The sides are measured in metres.

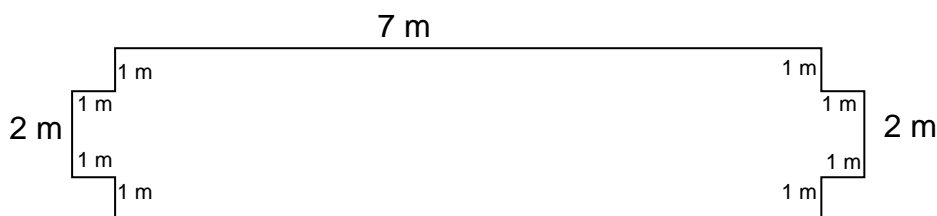The perimeter of the shape is the distance all the way round the outside.

So, the perimeter is
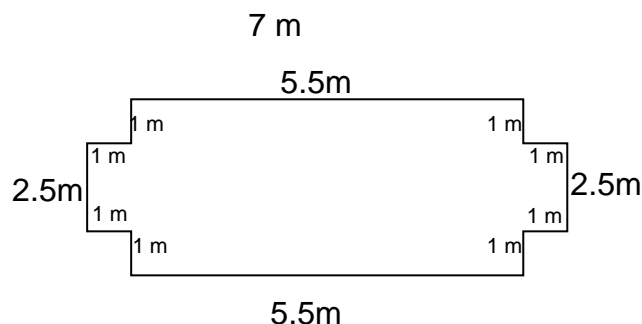
9m + 1m + 1m + 2m +1m +1m +9m + 1m + 1m + 2m +1m +1m

30m

Activity 1

Work out the perimeter of the following shapes.

a)

b)

Activity 2

Work out the perimeter of the following shapes.

a)

```
            2 m
8 m                  8 m




8 m                  8 m


            2 m
```

b)
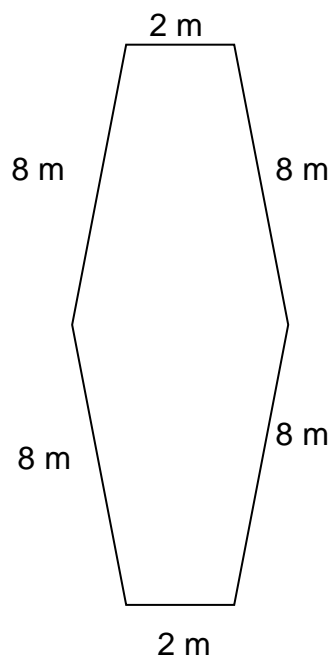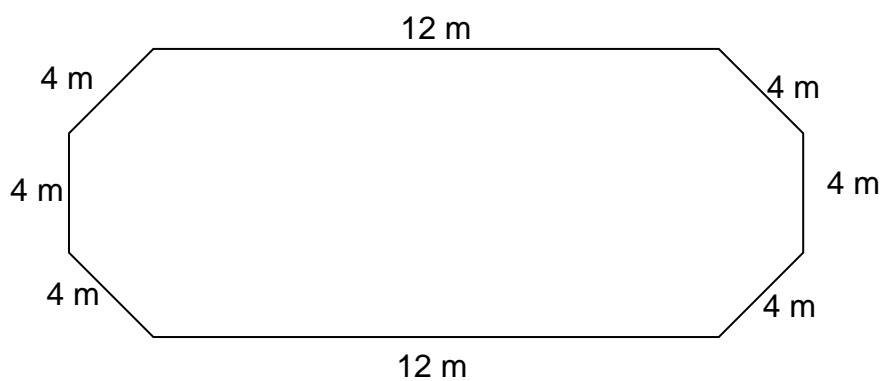
```
              12 m
4 m                        4 m

4 m                          4 m

4 m                        4 m
              12 m
```
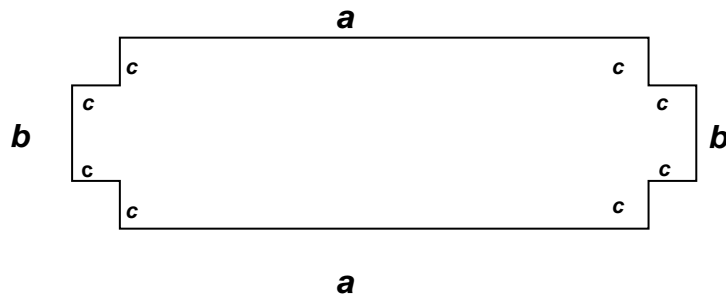
Example 2

If we replace the numbers in the last example with letters, the shape would look like this.

The perimeter of the shape is the distance all the way round the outside.

So, the perimeter is

$$a + c + c + b + c + c + a + c + c + b + c + c$$

$$2a + 2b + 8c$$

We can write this as a formula:
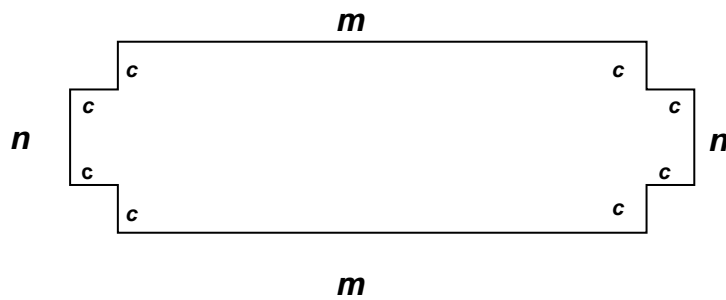
$$\textbf{P = 2a + 2b + 8c}$$

Activity 3

What's the formula for the perimeter of the following shapes?

a)

e

c   c
c   c
f   f
c   c
c   c

e

P = _____

b)

m

c   c
c   c
n   n
c   c
c   c

m

P = _____

Activity 4

Work out the perimeter of the following shapes.

a)

a

b   b

b

b

b

a

P = _____

b)

c

b   b

b   b

b   b

c

P = _____