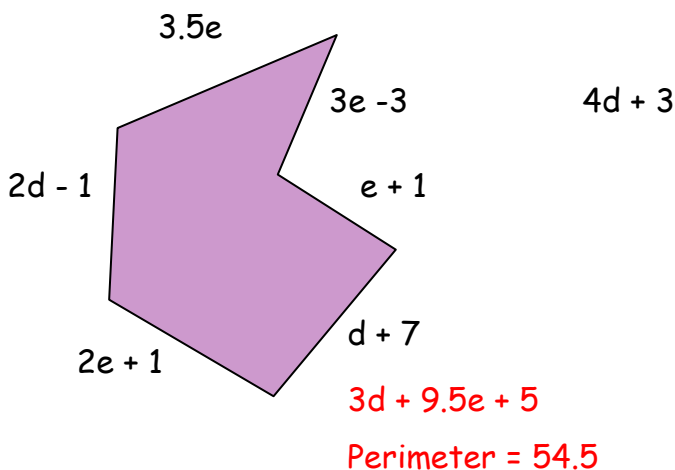# Writing and substituting into an expression
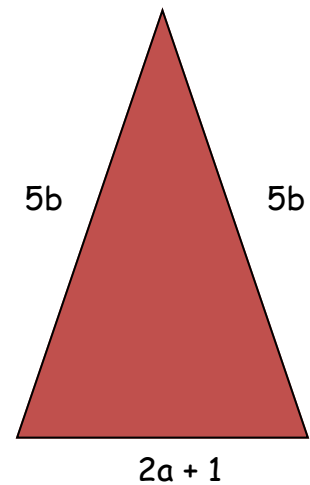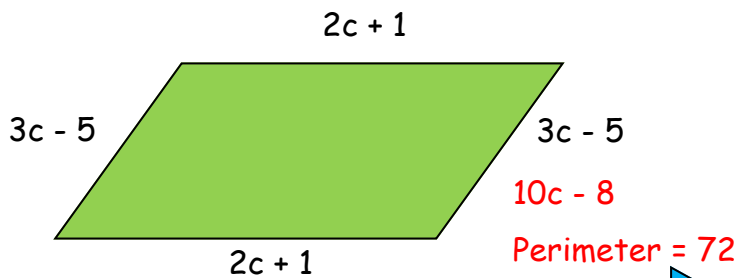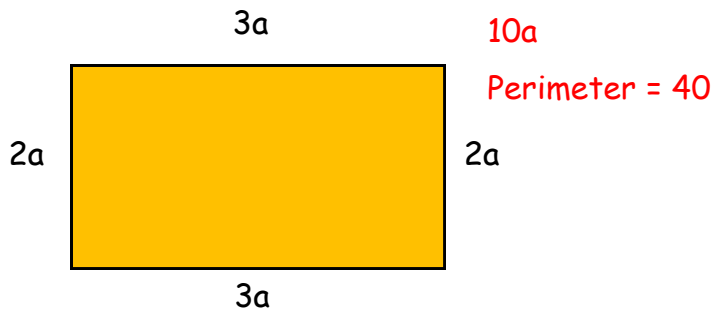
1a. Write and simplify an expression for the perimeter of each of these shapes.

3a

2a   2a

3a

10a

Perimeter = 40

5b   5b

2a + 1

2a + 10b + 1

Perimeter = 34

2c + 1

3c - 5   3c - 5

2c + 1

10c - 8

Perimeter = 72

3.5e

3e -3

2d - 1   e + 1

2e + 1   d + 7

3d + 9.5e + 5

Perimeter = 54.5

4d + 3   8d + 1

7d - 6

19d - 2
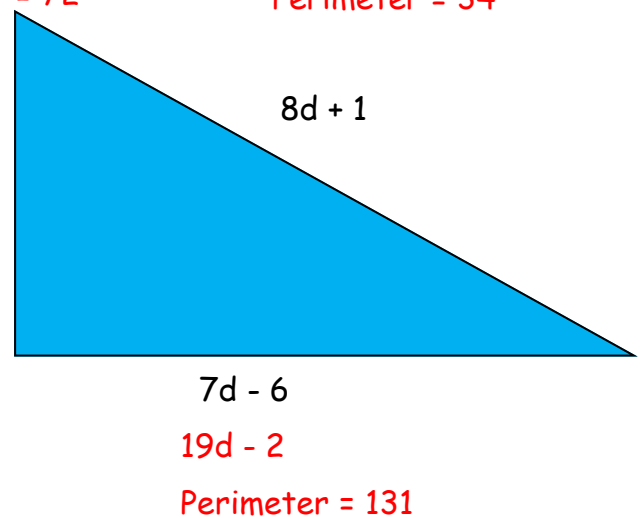
Perimeter = 131

b. If a = 4, b = 2.5, c = 8, d = 7 and e = 3, what are the perimeters of the 5 shapes above.

Extension

The following two shapes have exactly the same area. What is the value of x?

8x + 10 = 6x + 20

x = 5

4x

5

3x + 6

10

3x + 4