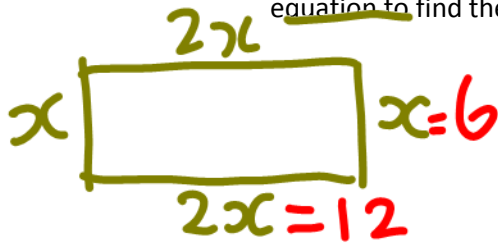


NZC Mathematics Level 4 – Number and Algebra – Equations and Expressions - MERIT
Form and Solve Simple Linear Equations

1. A rectangle has a perimeter of 36cm, the length is twice the width. Form and solve an equation to find the area of the rectangle.



$$x + 2x + x + 2x = 36$$

$$6x = 36$$

$$x = 6$$

$$A = 12 \times 6 = 72 \text{ cm}^2$$

2. An isosceles triangle has two angles that are both twice the size of the remaining angle. Form and solve an equation to find the size of the smallest angle in the triangle.



$$x + 2x + 2x = 180$$

$$5x = 180$$

$$x = 36$$

$$\text{Smallest } \angle = 36^\circ$$

3. There are 100 legs in a field of sheep and ducks. There are 20 Ducks, how many sheep are there. Form and solve an equation in order to answer this question. Show ALL your working.

$$20 \times 2 + x \times 4 = 100$$

$$4x = 60$$

$$x = 15 \quad 15 \text{ Sheep.}$$

4. There are 300 legs in a field which has hens and cows. There are a total of 80 animals in the field. How many hens are there in the field? Form two equations and substitute one equation into the other equation in order to solve the problem. Show all working and answer the question in context.

A hand-drawn diagram showing a stick figure representing a hen and a four-legged animal representing a cow.

$$H + C = 80 \quad \leftarrow \text{Animals}$$

$$2H = 80 - C$$

$$2H + 4C = 300 \quad \leftarrow \text{legs}$$

$$2(80 - C) + 4C = 300$$

$$80 - C + 80 - C + 4C = 300$$

$$160 + 2C = 300$$

$$2C = 140$$

$$C = 70$$

70 Cows
10 Hens.

$$H = 80 - C$$