


For the problems below, write the appropriate let statements and include a diagram. Write the equation and solve it. Write a meaningful conclusion.

1. The side of a square is $2x+3$. If the perimeter is 96, what is x ? (10.5)

let " $2x+3$ " be the side of a square



$$4(2x+3) = 96$$

$$8x + 12 - 12 = 96 - 12$$


$$\frac{8x}{8} = \frac{84}{8}$$

$$x = 10.5$$

$\therefore x$ is 10.5

2. A rectangle is four times as long as it is wide. Its perimeter is 200cm. Find the length and the width of the rectangle. (80cm 20cm)

let w be the width



width	length
w	$4w$

$$2(w + 4w) = 200$$

$$2(5w) = 200$$

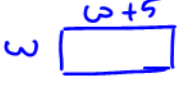
$$\frac{10w}{10} = \frac{200}{10}$$

$$w = 20$$

\therefore The width is 20cm
The length is 80cm

3. The length of a rectangle is 5m more than the width. If the perimeter is 70m, what is the width? (15m)

let " w " be the width



$$2(w + w + 5) = 70$$

$$2(2w + 5) = 70$$

$$4w + 10 - 10 = 70 - 10$$


$$\frac{4w}{4} = \frac{60}{4}$$

$$w = 15$$

The width is 15m.

4. The width of a rectangular swimming pool is 8m less than the length. Find the dimensions of the pool if the perimeter is 104m. (22m, 30m)

let " L " be the length



$$2(L + L - 8) = 104$$

$$2(2L - 8) = 104$$

$$4L - 16 + 16 = 104 + 16$$

$$\frac{4L}{4} = \frac{120}{4}$$

$$L = 30$$

\therefore The length is 30m
The width is $30 - 8 = 22$ m

5. The length of a rectangle is 3 more than twice the width. If the perimeter is 42m, what is the width? (6m)

Let "w" be the width



$$2(w + 2w + 3) = 42$$

$$2(3w + 3) = 42$$

$$6w + 6 - 6 = 42 - 6$$

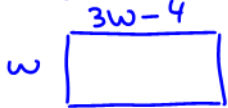
$$\frac{6w}{6} = \frac{36}{6}$$

$$w = 6$$

∴ The width is 6m.

6. The length of a rectangular playground is 4 metres less than 3 times the width. The perimeter is 64 metres. What are the dimensions of the playground? (9m, 23m)

Let "w" be the width



$$\Rightarrow 2(w + 3w - 4) = 64$$

$$2(4w - 4) = 64$$

$$8w - 8 + 8 = 64 + 8$$

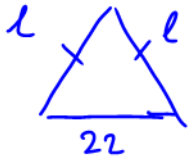
$$\frac{8w}{8} = \frac{72}{8}$$

$$w = 9$$

The width is 9m
The length is $3(9) - 4 = 23m$

7. The base of an isosceles triangle is 22cm and its perimeter is 90cm. Find the length of each of the equal sides using an algebraic equation. Be sure to define your variables.

Let "l" be the side lengths.



$$l + l + 22 = 90$$

$$2l + 22 - 22 = 90 - 22$$

$$\frac{2l}{2} = \frac{68}{2}$$

$$l = 34$$

∴ The length is 34cm.

8. A rectangle has a length is 4 times the width, **after** it's been increased by 5. The perimeter is 70m. Find the value of the width and length.

Let "w" be the width

Length	width
$4(w+5)$ $= 4w + 20$	w

$$2(4w + 20 + w) = 70$$

$$2(5w + 20) = 70$$

$$10w + 40 = 70$$

$$10w + 40 - 40 = 70 - 40$$

$$\frac{10w}{10} = \frac{30}{10}$$

$$w = 3$$

∴ The width is 3m
The length is $4(3+5) = 32m$.