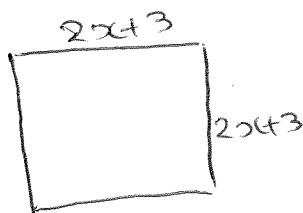# 4.3: Dimensions Word Problems

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?
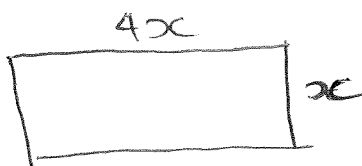
$$P = 4(side)$$
$$P = 4(2x+3)$$
$$96 = 8x + 12$$
$$84 = 8x$$
$$x = 10.5$$

∴ if the $P = 96$
$$x = 10.5 \text{ units}.$$

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.

$$P = 4x + x + 4x + x$$
$$10x = 200$$
$$x = 20$$

∴ The width is $20cm$.

Let x represent width
∴ length = $4x$

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

$$P = x+5+x+x+5+x$$
$$70 = 4x + 10$$
$$4x = 60$$
$$x = 15$$

let width be x
∴ Length = $x + 5$

∴ width is $15m$.

width

Dimensions Problems Handout (Extra Practice):

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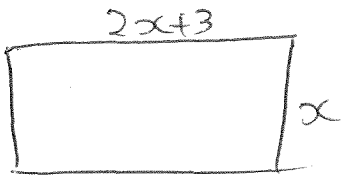
x

$x-8$

Let x represent the length

∴ width $= x-8$

$P = 2(x) + 2(x-8)$

$2x + 2x - 16 = 104$

$4x = 120$

$x = 30$

∴ length is 30 m and width is 22 m.

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

$2x+3$
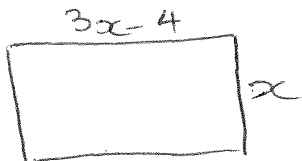
x

Let x represent width

∴ Length $= 2x+3$

$P = 2(2x+3) + 2x$

$4x + 6 + 2x = 42$

$6x = 36$

$x = 6$

∴ 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)

$3x-4$

x

let x represent width.

∴ Length $= 3x-4$

$P = 2(3x-4) + 2x$

$6x - 8 + 2x = 64$

$8x = 72$

$x = 9$

∴ width is 9m and length is 23 m.

Peer Assessment

1. The **sum of** two numbers **is** 29. **Twice** the first number **plus triple** the second number **is** 77. What are the **numbers**? let x represent 1st #

$\therefore$ 2nd # is $29-x$

$$2x + 3(29-x) = 77$$
$$2x + 87 - 3x = 77$$
$$-x + 87 = 77$$
$$-x = -10$$
$$x = 10$$

$\therefore$ The numbers are 10 and 19.

2. The **length** of a rectangle is 3cm **more** than **twice** the **width**. If the **perimeter** of the rectangle **is** 36 cm, find the **length** and the **width**. let x represent width

$\therefore$ length $= 2x+3$.

$$P = 2(L+w)$$
$$36 = 2(x + 2x + 3)$$
$$36 = 2(3x+3)$$
$$36 = 6x + 6$$
$$6x = 30$$
$$x = 5$$

$\therefore$ width is 5 cm

and length is 13 cm.

3. The sum of three consecutive even integers is 366. Find the three numbers.

Let $x, x+2, x+4$ represent three consecutive integers.

$$x + x+2 + x+4 = 366$$
$$3x + 6 = 366$$
$$3x = 360$$
$$x = 120$$

$\therefore$ The three numbers are 120, 122, 124.

Checklist: (write 1/2/3 in the blanks below)
- ➤ Let statement are there for _____ problems.
- ➤ Equation to be solved are there for _____ problems.
- ➤ Therefore statements are there for _____ problems.
- ➤ According to the solutions provided on the board, _____ answers are correct.