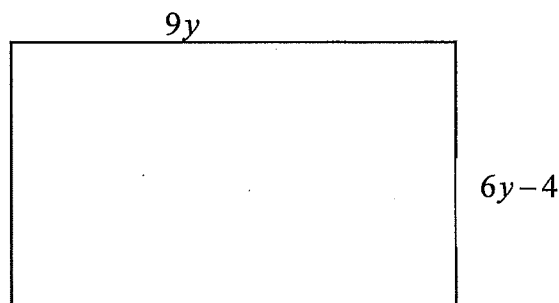


2.8: APPLYING THE DISTRIBUTIVE PROPERTY

Example 1) A rectangular stage has the dimensions shown below.

- Write a **simplified** expression for the **perimeter** of the stage.
- Write a **simplified** expression for the **area** of the stage.
- Determine the **perimeter** of the stage if $y = 3$ metres.
- Determine the **area** of the stage if $y = 3$ metres.



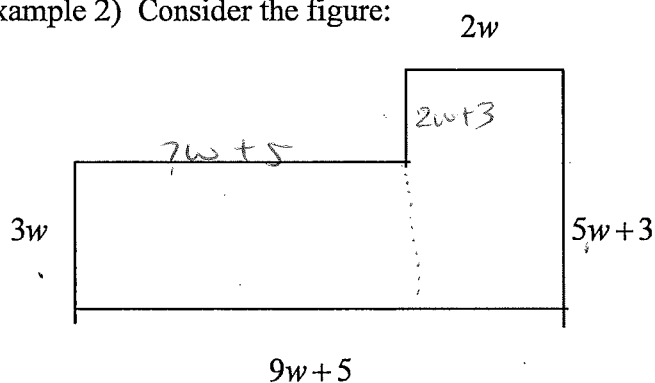
$$\begin{aligned} a) P &= 2L + 2W \\ &= 2(9y) + 2(6y-4) \\ &= 18y + 12y - 8 \\ &= 30y - 8 \end{aligned}$$

$$\begin{aligned} b) A &\hat{=} L \cdot W \\ &= 9y(6y-4) \\ &= 54y^2 - 36y \end{aligned}$$

$$\begin{aligned} c) P &= 30(3) - 8 \\ &= 82 \text{ m} \end{aligned}$$

$$\begin{aligned} d) A &= 54(9) - 36(3) \\ &= 396 \text{ m}^2 \end{aligned}$$

Example 2) Consider the figure:



* Do NOT FORGET
UNITS.
* WRITE THEREFORE
STATEMENTS.

- Fill in expressions for the missing sides.

see the diagram

- Write and simplify an expression for the perimeter of the figure.

$$\begin{aligned} A &= 2w(5w+3) + 3w(7w+5) \\ &= 10w^2 + 6w + 21w^2 + 15w \\ &= 31w^2 + 21w \end{aligned}$$

- Write, expand and simplify an expression for the area of the figure.

$$\begin{aligned} P &= 3w + 7w + 5 + 2w + 5w + 3 + 2w + 3 + 9w + 5 \\ &= 38w + 16 \end{aligned} \quad \text{OR} \quad \begin{aligned} &2(5w+3) + 2(9w+5) \\ &= 38w + 16 \end{aligned}$$