

$$\textcircled{1} a^4 \cdot a^3 = a^7$$

$$\begin{aligned} \textcircled{12} & x(-xy^5)^3 \cdot (3x^4y^2)^2 \\ & x(-x^3y^{15}) \cdot (9x^8y^4) \\ & (-x^4y^{15})(9x^8y^4) \\ & -9x^{12}y^{19} \end{aligned}$$

$$\textcircled{8} (3cd)(3cd^6)(-5d^3)$$
$$\underline{-45c^2d^{10}}$$

$$\textcircled{3} \quad (8y^2 - 3) + (4y^2 - 2y + 9)$$

$$\underline{8y^2} - \underline{3} + \underline{4y^2} - \underline{2y} + \underline{9}$$

$$12y^2 - 2y + 6$$

$$\textcircled{11} \quad (-2x^3y^2)^4 = 16x^{12}y^8$$

$$\textcircled{12} \quad (w-6)^2 = (w-6)(w-6)$$

$$w^2 - 6w - 6w + 36$$

$$w^2 - 12w + 36$$

Q20

$$(2p^2 - 1)(6p^2 + 2p - 4)$$

$$12p^4 + 4p^3 - 8p^2 - 6p^2 - 2p + 4$$

$$12p^4 + 4p^3 - 14p^2 - 2p + 4$$

$$\begin{aligned} & \textcircled{19} \quad (3b+4)(-6b-2) \\ & \quad -18b^2 - 6b - 24b - 8 \\ & \quad -18b^2 - 30b - 8 \end{aligned}$$

$$\textcircled{17} (n+7)(n-4)$$

$$n^2 - \underline{4n} + \underline{7n} - 28$$

$$n^2 + 3n - 28$$

$$\textcircled{4} (3x^2y - 3x^2 + 4xy^2) - (7x^2y^2 + 2y^2 - 3xy^2)$$

$$3x^2y - 3x^2 + \underline{4xy^2} - 7x^2y^2 - 2y^2 + \underline{3xy^2}$$

$$\textcircled{3x^2y - 3x^2 + 7xy^2 - 7x^2y^2 - 2y^2}$$

$$\textcircled{8} (-4a^4b^4)(-3a^5b)$$

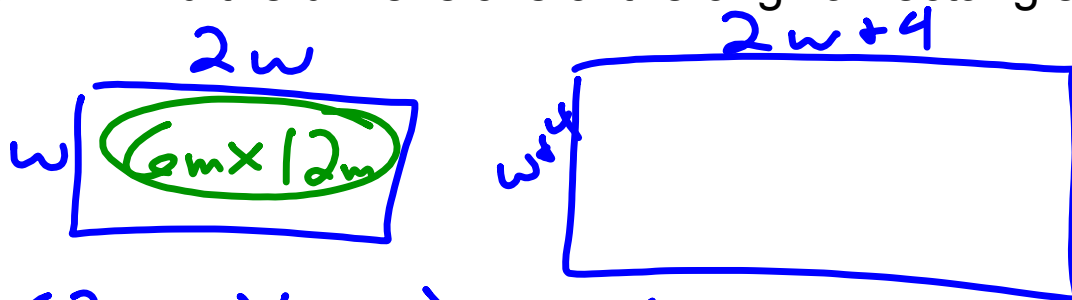
$$12a^9b^5$$

$$\textcircled{9} 3^4 \cdot 3^{n+2} = 3^{n+6}$$
$$3^{\underline{4+n+2}}$$

$$(y^5)^3 = y^5 \cdot y^5 \cdot y^5$$

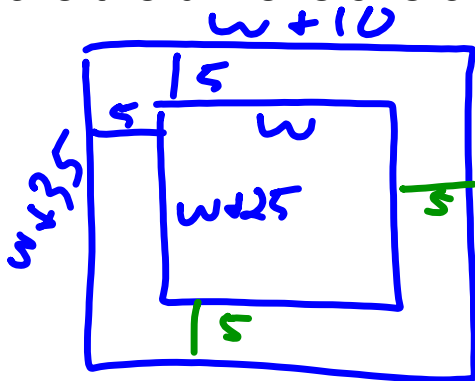
- 1) A rectangle is twice as long as it is wide. If both its dimensions are increased by 4m, its area is increased by 88m^2 . Find the dimensions of the original rectangle.
- 2) A poster is 25cm taller than it is wide. It is mounted on a piece of cardboard so that there is a 5cm border on all sides. If the area of the border alone is 1350cm^2 , what are the dimensions of the poster?
- 3) A house has two rooms of equal area. One room is square and the other room is a rectangle 4ft narrower and 5ft longer than the square one. Find the area of each room.

1) A rectangle is twice as long as it is wide. If both its dimensions are increased by 4m, its area is increased by 88m^2 . Find the dimensions of the original rectangle.



$$\begin{aligned}
 (2w+4)(w+4) - w(2w) &= 88 \\
 \cancel{2w^2} + 12w + 16 - \cancel{2w^2} &= 88 \\
 -16 & \quad -16 \\
 \hline
 12w &= 72 \\
 \frac{12}{12} & \quad \frac{72}{12} \quad w=6
 \end{aligned}$$

2) A poster is 25cm taller than it is wide. It is mounted on a piece of cardboard so that there is a 5cm border on all sides. If the area of the border alone is 1350cm^2 , what are the dimensions of the poster?



$$(w+10)(w+35) - w(w+25) = 1350$$

$$w^2 + 45w + 350 - w^2 - 25w = 1350$$

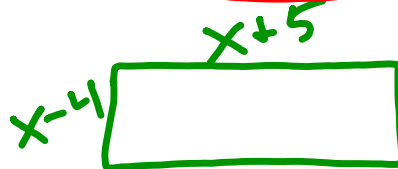
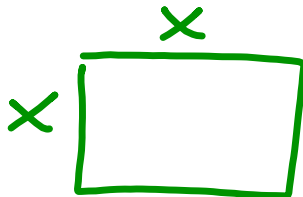
$$\begin{array}{r} 20w + 350 \\ \hline 20w = 1000 \\ \hline 20 \end{array}$$

$$w = 50$$

$$50\text{cm} \times 75\text{cm}$$

3) A house has two rooms of equal area. One room is square and the other room is a rectangle 4ft narrower and 5ft longer than the square one. Find the area of each room.

$$20 \cdot 20 = 400 \text{ ft}^2$$



$$x^2 = (x-4)(x+5)$$

$$\cancel{x^2} = \cancel{x^2} + x - 20$$

$$0 = x - 20$$

$$\begin{array}{r} +20 \quad +20 \\ \hline 20 = x \end{array}$$

A corner lot that originally was square lost 185m^2 of area when one of the adjacent streets was widened by 3m and the other was widened by 5m. Find the new dimensions of the lot.

