

$$\frac{(6x^4y^6)^2}{(-4x^3y^5)^3} = \frac{36x^8y^{12}}{-64x^9y^{15}}$$

$$-\frac{9}{16}x^{8-9}y^{12-15}$$

$$-\frac{9}{16xy^3}$$

$$36x^2 - 9$$

$$9(4x^2 - 1)$$

$$9(2x+1)(2x-1)$$

(#12) $A = 6x^2y + 4xy^2$
 $A = LW$

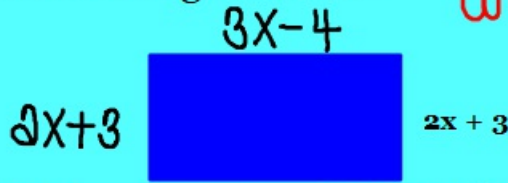
$$\frac{6x^2y + 4xy^2}{2xy} = \frac{L(2xy)}{2xy}$$

$$3x + 2y = L$$

1. What is the **difference** between the **area** and **perimeter** of the rectangle below?

add all sides

$$A = l \cdot w$$



Area:

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

$$6x^2 - 8x + 9x - 12$$

$$6x^2 + x - 12$$

perimeter

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

$$4x + 6 + 6x - 8$$

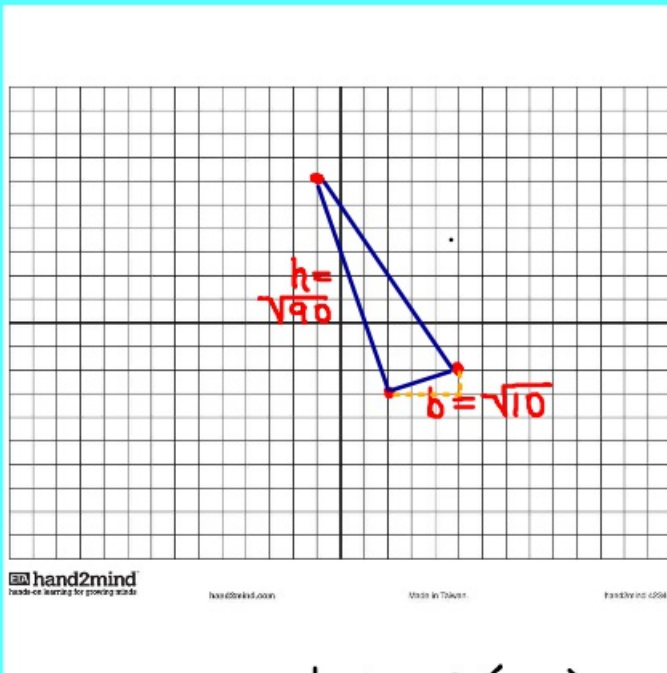
$$10x - 2$$

$$6x^2 + x - 12 - (10x - 2)$$

$$6x^2 + x - 12 - 10x + 2$$

$$6x^2 - 9x - 10$$

2.) A right triangle is formed by connecting coordinates (5, -2), (2, -3), and (-1, 6). What is the area of the triangle in square units? Use graph paper.



$$A = \frac{1}{2}bh$$

$$\frac{b}{(1)^2 + (3)^2 = c^2}$$

$$1 + 9 = c^2$$

$$\sqrt{10} = \sqrt{c^2}$$

$$c = \sqrt{10}$$

$$\frac{h}{(9)^2 + (3)^2 = c^2}$$

$$81 + 9 = c^2$$

$$\sqrt{90} = \sqrt{c^2}$$

$$c = \sqrt{90}$$

$$A = \frac{1}{2}(\sqrt{10})(\sqrt{90})$$

$$A = 15 \text{ units}^2$$

Application

Find the length and width

1.

$$A = \frac{10x^3y^4}{10xy} + \frac{30xy}{10xy}$$

$$A = 10xy(x^2y^3 + 3)$$

$$L = 10xy$$

$$W = x^2y^3 + 3$$

2.

$$A = 25c^2 - 1$$

$$(5c+1)$$

$$(5c-1)$$

$$L = 5c+1$$

$$W = 5c-1$$

3.

$$A = x^2 - 7x - 8$$

$$a=1 \quad b=-7$$

$$c=-8$$

$$(x+1)(x-8)$$

$$L = x+1$$

$$W = x-8$$

4.

$$A = \frac{2x^2 - 6x}{2x} + \frac{7x - 21}{7}$$

$$2x(x-3) + 7(x-3)$$

$$(2x+7)(x-3)$$

$$L = 2x+7$$

$$W = x-3$$

The L length of Morgan's room is three times the W width of her room. After some remodeling the area of Morgan's room is given by the trinomial $3w^2 + 8w + 4$ sq.ft. Find the increase in the dimensions of the room. (Hint: Factor $3w^2 + 8w + 4$ and compare the dimensions with the original.)

$L = 3W$
 $W = W$
 before
 remodel

$$A = 3W^2 + 8W + 4$$

$a = 3 \quad b = 8 \quad c = 4$

$$(3W^2 + 6W + 2W + 4)$$

$$(3W)(W+2) + 2(W+2)$$

$$(3W+2)(W+2)$$

$\begin{matrix} L & & W \\ (3W+2) & & (W+2) \\ L & & W \end{matrix}$

~~$\begin{matrix} 12 \\ 6 & 2 \\ 8 & 2 \end{matrix}$~~

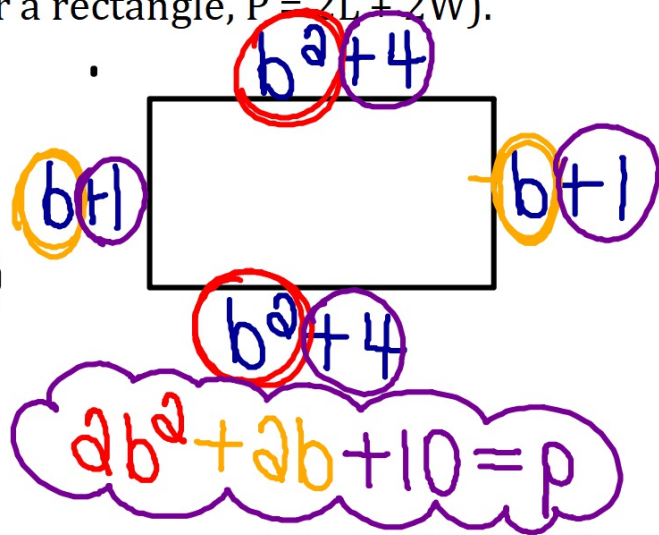
2 ft.

$$a = lw$$

The area of a rectangular plastic sheet is given by $b^3 + b^2 + 4b + 4$ square inches. Find an expression for the perimeter of the sheet. (Hint : Factor $b^3 + b^2 + 4b + 4$ to find the length and width of the sheet. Use the perimeter formula for a rectangle, $P = 2L + 2W$).

$$\frac{(b^3 + b^2)(4b + 4)}{b^2 \quad b^2 \quad 4 \quad 4}$$

$$b^2(b+1) + 4(b+1)$$
$$(b^2 + 4)(b+1)$$



A square parking area has an area equal to $36x^2 - 36x + 9$ meters. Find the side of the parking lot.

The length of a rectangular courtyard is given by the expression $2x - 3$. If the area is given by, $2x^2 + 5x - 12$, find the width of the room. (Hint: Factor the expression given for area.)

The volume of a rectangular prism is $15x^3 + 70x^2 + 40x$. What are the possible dimensions of the prism? $V = lwh$

