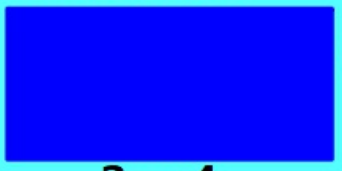
Warm-Up 11/29/18

1. Find the area



	$2x$	3
$3x$	$6x^2$	$9x$
-4	$-8x$	-12

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

2. Factor Completely: $5z^2 + 50z + 125$

$5(z^2 + 10z + 25)$

$(z^2 + 5z)(+5z + 25)$

$z(z+5)\,5(z+5)$

$5(z+5)^2$

$a=1$, $b=10$, $c=25$

25: $5 \mid 5$

3. Factor: $81x^2 - 9y^2$

$9(9x^2 - y^2)$

$9(3x+y)(3x-y)$

$(9x-3y)(9x+3y)$

$3(3x-y)\,3(x+y)$

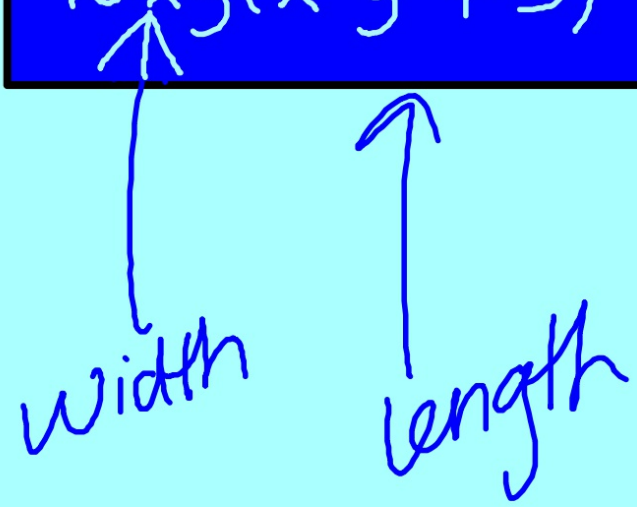
$9(3x-y)(3x+y)$

Application

Find the length and width.

1. $A = 10x^3y^4 + 30xy$

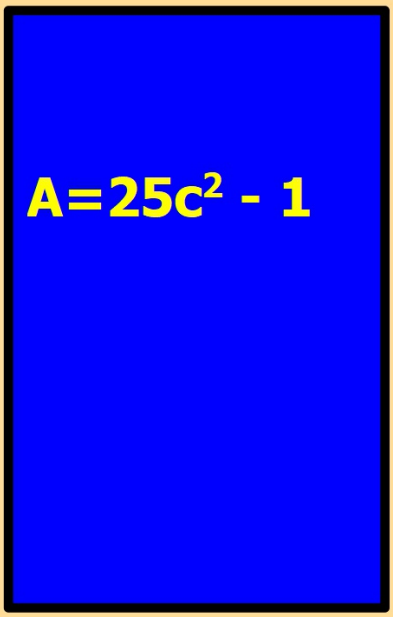
$10xy(x^2y^3+3)$



Application

Find the length and width.

2.



$25c^2 - 1$

$(5c+1)(5c-1)$

↓ length ↓ width

Application

Perimeter

Find the ~~length and width.~~

3.

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

$a=1 \quad b=-7 \quad c=-8$

$ac=-8$

$-8 \mid 1$

x^2-7x-8

$(x^2-8x)(+x-8)$

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

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

length ↓ width ↓

$P=$

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

$P=4x-14$

Application

Find the length and width.

4.

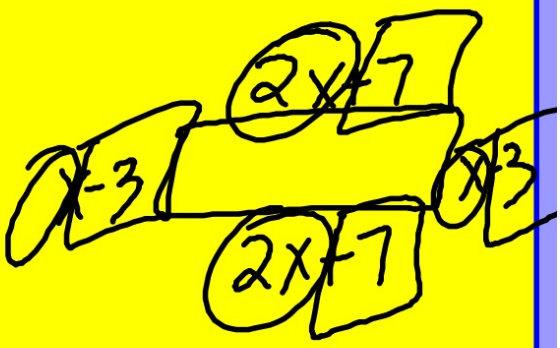
$A = 2x^2 - 6x + 7x - 21$

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

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

length width

$P = 6x + 8$



The length of Morgan's room is three times the 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.)

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

$3w^2+8w+4$

$ac=12$
$2|6$

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

$w(3w+2)2(3w+2)$

$(w+2)(3w+2)$

width

length

w = width

3w = length

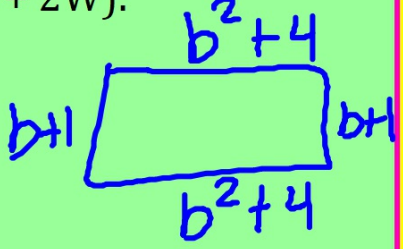
Increase of 2 ft.

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, $P = 2L + 2W$).

$(b^3+b^2)(4b+4)$

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

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



$P = 2b^2+2b+10$

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

$36x^2 - 36x + 9$

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

$c = 1$

$ac = 4$

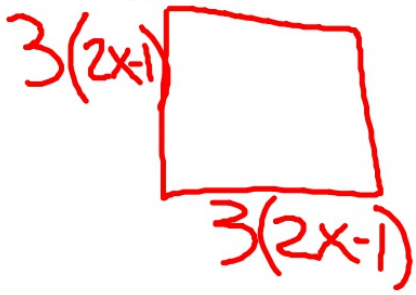
$-2 \mid -2$

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

$2x(2x - 1) - 1(2x - 1)$

$9(2x - 1)^2$

$3 \quad 3 \quad 2x-1 \quad 2x-1$



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.)

$2x^2 + 5x - 12$

$a = 2$
$b = 5$
$c = -12$
$ac = -24$

$-3 \mid 8$

$(2x^2 - 3x)(+8x - 12)$

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

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

width

length

$a=3$ $c=8$
$b=14$

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

$ac = 24$

$12 \mid 2$

$5x(3x^2+14x+8)$

$(3x^2+12x)(+2x+8)$

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

$5x(3x+2)(x+4)$

length width height