

# Pick up the new Recording Sheet and the Warm Up

done any assignments up to that point.

Day (Mon, Tu, etc)	Date Assigned	HW Description	HW Proficiency Score from 0 to 10	Ex p s i t i "ab
M	10/22	Bl... 5-9, 11-12		
	/			

Reminder: If you are absent, you are required to check the class website for details before you return.



While you work, let me know if there are HW questions you want me to go over.

## Area models can help rewrite expressions that involve multiplication?

The area model at right relates the expressions  $(2x - 3)(3x + 1)$  and  $6x^2 - 7x - 3$ .

+ 1	2x	-3
3x	6x <sup>2</sup>	-9x
	2x	-3

- a) Use an area model to find an expression equivalent to  $(5k - 3)(2k - 1)$

$$10k^2 - 11k + 3$$

	2k	-1
5k	10k <sup>2</sup>	-5k
-3	-6k	3

- a) Use an area model to find an expression equivalent to  $(5k - 3)(2k - 1)$

$$\underline{10k^2 - 11k + 3}$$

	$2k$	$-1$
$5k$	$10k^2$	$-5k$
$-3$	$-6k$	$3$

- b) Use an area model to help you multiply  $(p^2 + 3p + 9)(2p - 1)$

	$2p$	$-1$
$p^2$		
$3p$		
$9$		

	$2p$	$-1$
$p^2$	$2p^3$	$-p^2$
$3p$	$6p^2$	$-3p$
$9$	$18p$	$-9$

$$2p^3 + 5p^2 + 15p - 9$$

- c) Write the last problem as a product being equal to the sum

$$(p^2 + 3p + 9)(2p - 1) = 2p^3 + 5p^2 + 15p - 9$$

d) Write  $2x^2+5x+2$  as a product (in other words.... factor it!)

$$= (x+2)(2x+1) \quad \swarrow$$

## FACTORING QUADRATICS

that are

Differences of Perfect Squares

$$w^2 - 81 = \boxed{w}^2 - \boxed{9}^2 = (w+9)(w-9)$$

$$x^2 - 16y^2 = \boxed{x}^2 - \boxed{4y}^2 = (x+4y)(x-4y)$$

$$4m^2 - 1 = \boxed{2m}^2 - \boxed{1}^2 = (2m+1)(2m-1)$$

$$4a^2 + 9b^2 = \text{can't be factored}$$

HW

3-... 5 to 12

$$\begin{aligned} 12a \quad 25^{\frac{1}{2}} &= \frac{1}{25^{\frac{1}{2}}} = \frac{1}{\sqrt{25}} \\ &= \frac{1}{5} \end{aligned}$$

7

$$\left( \frac{2x^5y^4}{8xy^9} \right)^3$$

Bonnie

$$\frac{8x^{15}y^{12}}{512x^3y^9}$$

Dylan

$$\left( \frac{x^4y}{4} \right)^3$$

$$\textcircled{5} \text{ a } (2x-3)^2 + 5$$

$$\textcircled{b}$$

$$\left( \frac{3x^2y}{x^3} \right)^4$$

$$\textcircled{6} \textcircled{a} \sqrt{4x^2y^4} = \sqrt{4} \cdot \sqrt{x^2} \cdot \sqrt{y^4} =$$

$$\textcircled{b} \sqrt{8x^2y} = \sqrt{8} \cdot \sqrt{x^2} \sqrt{y} =$$

$$\textcircled{c} \sqrt{4x^2y} =$$

$$\textcircled{d} \sqrt{16xy^2}$$

$$\textcircled{e} \sqrt{8xy^2}$$

8 Describe the graph given the equation

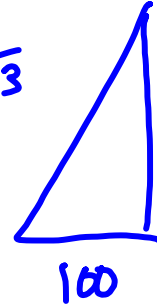
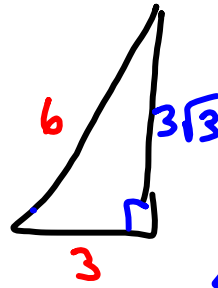
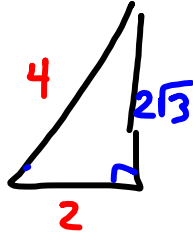
a)  $y = 3$

b)  $x = -2$

c) Where do  
the graphs  
cross

9  $342 = 23m + b$   
 $147 = 10m + b$

10



The long leg is ....

The hypotenuse is ....



3, 9, .....

(a) Arith

(b) Geom

(c) Neither

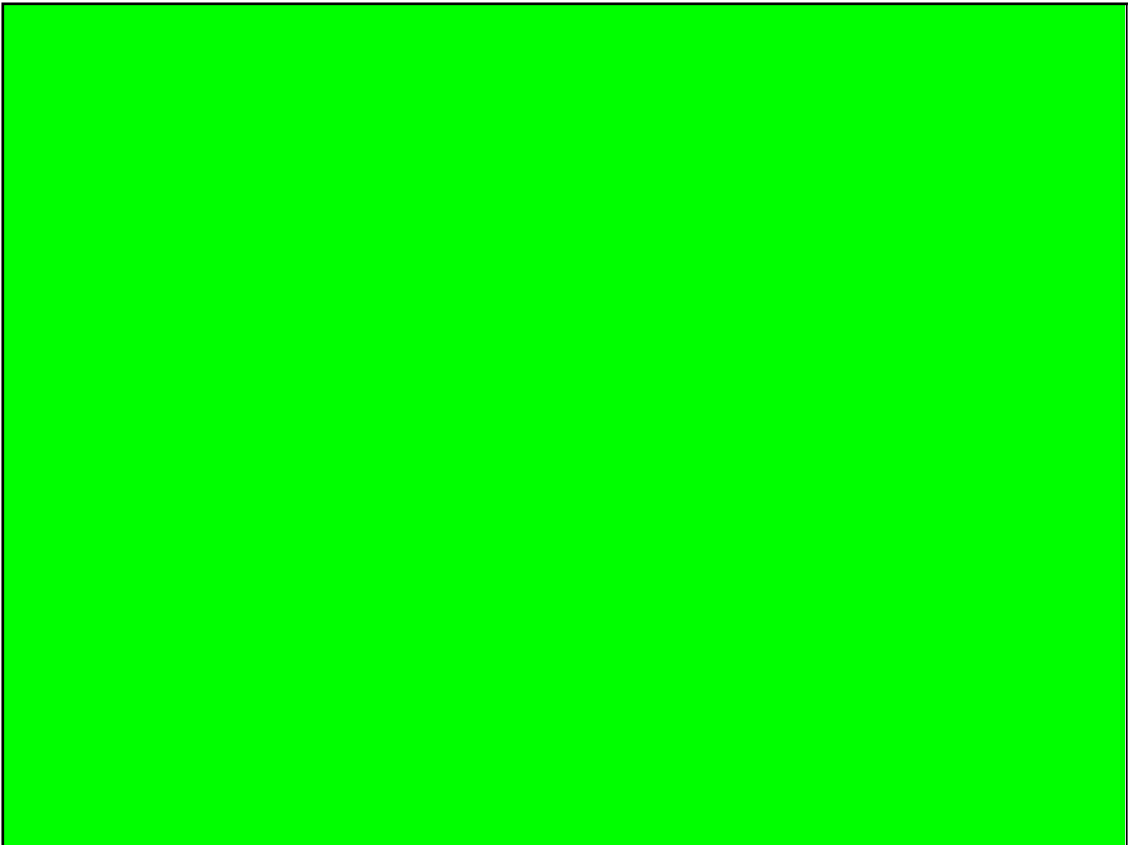


2 a  $25^{-\frac{1}{2}} =$

b  $\left(\frac{1}{27}\right)^{-\frac{1}{3}} =$

c  $9^{\frac{3}{2}} =$

d  $16^{-\frac{3}{4}} =$



## Continuing with

**EQUIVALENT EXPRESSIONS**

today's goal...

How can we be sure they are equivalent?

How would this look on a diagram?

What are other ways to find equivalent expressions?

textbook  $(3-17)$  b and ~~c~~

For each, make two equivalent statements

b

<del>x</del>	$x^2$	$3x$
8	$8x$	24
	$x$	3

c

$5x$	$10x^2$	$-20xy$	$25x$
$-3$	$-6x$	$12y$	$-15$
	$2x$	$-4y$	5

$$(x+8)(x+3) = x^2 + 11x + 24$$

$$(5x-3)(2x-4y+5) = 10x^2 + 19x + 12y - 20xy - 15$$

# The **U** substitution trick

a) In order to re-write  $y^4 - x^2$   
substitute **U** for  $y^2$   
 $U \rightarrow y^2$        $\square^2 - \square^2$

$$y^4 - x^2$$
$$(U)^2 - x^2$$
$$= (U+x)(U-x)$$

$y^2 \rightarrow U$

$$= (y^2+x)(y^2-x)$$

b) Re-write  $9x^2y^4 - z^6 = U^2 - V^2$

Substitute  $U$  for  $3xy^2$

and  $V$  for  $z^3$

$= (U+V)(U-V)$

re-substitute backwards

$= (3xy^2 + z^3)(3xy^2 - z^3)$

c) Solve the system

$$2x + y^7 = 6$$

$$3x - 2y^7 = -5$$

Substitute  $U$  for  $y^7$  ← can multiply top equation by 2

Solution

$$x = 1$$

$$y = \sqrt[7]{4}$$

$$2x + U = 6$$

$$3x - 2U = -5$$

$$4x + 2U = 12$$

$$+ 3x - 2U = -5$$


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$$7x = 7$$

$$x = 1$$

$$2(1) + U = 6$$

$$2 + U = 6$$

$$U = 4$$

replace  $U$  with  $y^7$

d) FACTORS

$$(a+7)^2 - 10(a+7) + 25$$

$$U \rightarrow a+7$$

$$U^2 - 10U + 25$$

$$(U-5)(U-5)$$

$$a+7 \rightarrow U$$

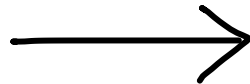
$$(a+7-5)(a+7-5)$$

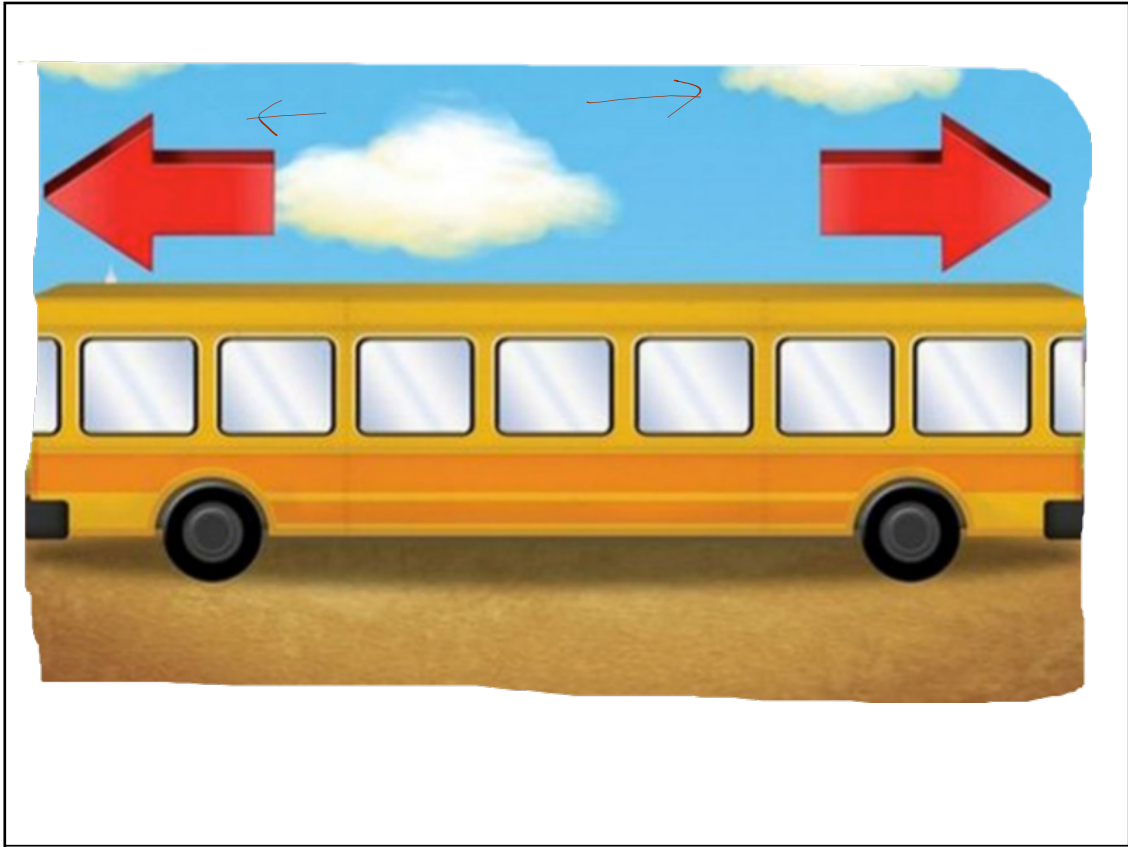
$$(a+2)(a+2)$$

	U-5	
U	U <sup>2</sup> -5U	$\frac{25U^2}{-10U}$
-5	+5U   25	

$-5U-5U$

B.B.





See your  
test

**Assignment**

**3** - 23ace , 25, 29c , 30, 31-32, 35ab