



Pre-Algebra

D-Block

Agenda:

- Polynomials

To Do Now:

- Have your notebook on your desk.
- Have your homework (Add-Sub Polynomials) on your desk.

Warm Up:

$$-3x - (\quad 2x) = -5x$$

Determine the missing value.

$$(-3x^2 - 4x + 3) + (x^2 + \underline{\quad}x - 4) = -2x^2 - 2x - 1$$

$$(x^2 - 3x + 4) - (2x^2 + \underline{\quad}x + 8) = -x^2 - 5x - 4$$

$$(\underline{\quad}x^2 + 4) - (6x^2 + 4x - 2) = -8x^2 - 4x + 6$$

$$(-x^2 + \underline{\quad}x - 2) - (\underline{\quad}x^2 - 3x + 1) = 2x^2 + 5x - 3$$

Nov 4-10:28 AM

Multiplying Monomials

Expand the following, writing each exponential monomial as a product

1. x^2 $x \cdot x$

2. y^6 $y \cdot y \cdot y \cdot y \cdot y \cdot y$

3. $(5x)^3$ $5x \cdot 5x \cdot 5x$

Write the following product using exponential notation:

1. $2 \times 2 \times 2 \times 2$ 2^4

2. $(3x)(3x)(3x)(3x)$ ~~3^4~~ $(3x)^4$

3. $(-4x)(-4x)(-4x)(-4x)$ ~~-4^4~~ $(-4x)^4$

May 18-8:36 PM

Powers of Monomials

Write the following in expanded form:

1. $x^2(x^6)$ $(x \cdot x)(x \cdot x \cdot x \cdot x \cdot x \cdot x) = x^8$

2. $(y^3)(y^4)$ $(y \cdot y \cdot y)(y \cdot y \cdot y \cdot y) = y^7$

3. $(4^2)(4^4)$ $(4 \cdot 4)(4 \cdot 4 \cdot 4 \cdot 4) = 4^6$

Write the following products in exponential form:

1. $(x)(x)(x)(x)(y)(y)(y) = x^4 y^3$ ~~$4x^3 y^5$~~

2. $(3 \times 3 \times 3 \times 3)(4 \times 4 \times 4) = 3^4 \cdot 4^3$

3. $(4x)(4x)(4x)(y)(y)(y)(y)(y) = (4x)^3 y^5$

Write the rule: $(x^a)(x^b) = x^{a+b}$

May 19-6:54 AM

Multiplying Monomials

Write the following as a product:

1. $(x^4)^2 \rightarrow x^4 \cdot x^4 \rightarrow (x \cdot x \cdot x \cdot x)(x \cdot x \cdot x \cdot x)$

2. $(x^2)^3 \rightarrow (x^2)(x^2)(x^2) = (x \cdot x)(x \cdot x)(x \cdot x) = x^6$

3. $(3^2)^3 \rightarrow 3^6$

Write the rule:

$(x^a)^b \rightarrow x^4 \cdot x^4 \cdot x^4 \rightarrow (x^4)^3 \rightarrow x^{12}$

$(x^4)(x^3) \rightarrow x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x = x^7$

$x^{A \cdot B}$ $(x^A)(x^B) = x^{A+B}$

May 18-8:42 PM



Pre-Algebra

D-Block

- Agenda:**
- Polynomials

To Do Now:

- Have your notebook on your desk.
- Have Add-Sub Polynomials on your desk.

$$\begin{array}{r} -10x^2 \\ + 2x^2 \\ \hline -8x^2 \end{array}$$

Warm Up:

Determine the missing value.

$$(5x^2 - 4x - 4) + (-3x^2 + \underline{\quad}x - 2) = 2x^2 - 2x - 6$$

$$(-2x^2 + 5x - 3) - (-2x^2 + \underline{\quad}x + 8) = -5x - 11$$

$$(\underline{\quad}x^2 - 8) - (-2x^2 + 5x) = -8x^2 - 5x - 8$$

$$(-2x^2 + \underline{\quad}x + 3) - (\underline{\quad}x^2 - x - 2) = 2x^2 + 5x + 5$$

$$\begin{array}{r} -2x^2 \\ + 4x^2 \\ \hline 2x^2 \end{array}$$

Nov 4-10:28 AM

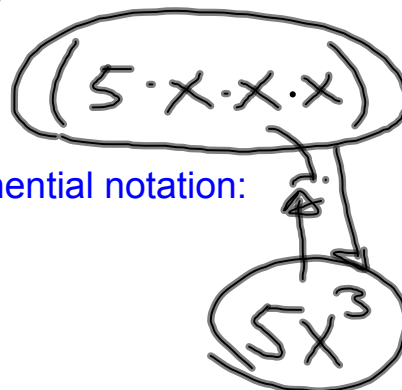
Multiplying Monomials

Expand the following, writing each exponential monomial as a product

1. $x^2 = x \cdot x$

2. $y^6 = y \cdot y \cdot y \cdot y \cdot y \cdot y$

3. $(5x)^3 = 5x \cdot 5x \cdot 5x$



Write the following product using exponential notation:

1. $2 \times 2 \times 2 \times 2$

$$2^4$$

$$(3x)^4$$

2. $(3x)(3x)(3x)(3x)$

3. $(-4x)(-4x)(-4x)(-4x)$

$$(-4x)^4$$

May 18-8:36 PM

Powers of Monomials

Write the following in expanded form:

1. $x^2(x^6)$ $(x \cdot x)(x \cdot x \cdot x \cdot x \cdot x \cdot x) = x^8$

2. $(y^3)(y^4)$ $(y \cdot y \cdot y)(y \cdot y \cdot y \cdot y) = y^7$

3. $(4^2)(4^4)$ $(4 \cdot 4)(4 \cdot 4 \cdot 4 \cdot 4) = 4^6$

Write the following products in exponential form:

1. $(x)(x)(x)(x)(y)(y)(y)$ $(x^4)(y^3) = x^4y^3$

2. $(3 \times 3 \times 3 \times 3)(4 \times 4 \times 4)$ $3^4 \cdot 4^3$

3. $(4x)(4x)(4x)(y)(y)(y)(y)(y)$ $(4x)^3 \cdot y^5$

Write the rule: $(x^a)(x^b) = x^{A+B}$
 $x^{10} \cdot x^3 =$

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Multiplying Monomials

Write the following as a product:

1. $(x^4)^2$ $(x^4)(x^4) = (x \cdot x \cdot x \cdot x)(x \cdot x \cdot x \cdot x) = x^8$

2. $(x^2)^3$ $(x^2)(x^2)(x^2) = x \cdot x \cdot x \cdot x \cdot x \cdot x = x^6$

3. $(3^2)^3$ $(3^2)(3^2)(3^2) = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = 3^6$

Write the rule:

$$(x^a)^b = x^{A \cdot B}$$
$$x^A \cdot x^B = x^{A+B}$$
$$(x^A)^B = x^{AB}$$

May 18-8:42 PM



Intro to Algebra

Agenda:

- Back to Algebra!
- Polynomials

To Do Now:

- Have your notebook on your desk.
- Polynomials

Warm Up:

Determine the missing value.

$$(-3x^2 - 4x + 3) + (x^2 + \underline{\quad}x - 4) = -2x^2 - 2x - 1$$

$$(x^2 - 3x + 4) - (2x^2 + \underline{\quad}x + 8) = -x^2 - 5x - 4$$

$$(\underline{\quad}x^2 + 4) - (6x^2 + 4x - 2) = -8x^2 - 4x + 6$$

$$(-x^2 + \underline{\quad}x - 2) - (\underline{\quad}x^2 - 3x + 1) = 2x^2 + 5x - 3$$

Nov 4-10:28 AM

Multiplying Monomials

Expand the following, writing each exponential monomial as a product

1. x^2 $x \cdot x$

2. y^6 $y \cdot y \cdot y \cdot y \cdot y \cdot y$

3. $(5x)^3$ $5x \cdot 5x \cdot 5x$

$5^3 x^3 \leftarrow 5 \cdot 5 \cdot 5 \cdot x \cdot x \cdot x$

$$(-4)^4 = -4^4$$

$$256 \neq -256$$

$$(-4)(-4)(-4)(-4) \neq -(4)(4)(4)(4)$$

Write the following product using exponential notation:

1. $2 \times 2 \times 2 \times 2$ 2^4

2. $(3x)(3x)(3x)(3x)$ $(3x)^4 = 3^4 x^4$

3. $(-4x)(-4x)(-4x)(-4x)$ $(-4x)^4 = \underline{(-4)^4} x^4 \neq -4^4 x^4$
 $256x^4 = -256x^4$

May 18-8:36 PM

Powers of Monomials

Write the following in expanded form:

1. $x^2(x^6)$ $x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x$

2. $(y^3)(y^4)$ $y \cdot y \cdot y \cdot y \cdot y \cdot y$

3. $(4^2)(4^4)$ $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$

Write the following products in exponential form:

1. $(x)(x)(x)(x)(y)(y)(y)$ $x^4 y^3$

2. $(3 \times 3 \times 3 \times 3)(4 \times 4 \times 4)$ $3^4 4^3$

3. $(4x)(4x)(4x)(y)(y)(y)(y)(y)$ $(4x)^3 y^5$

Write the rule: $(x^a)(x^b) =$

x^{a+b}

May 19-6:54 AM

Multiplying Monomials

Write the following as a product:

1. $(x^4)^2$

2. $(x^2)^3$

3. $(3^2)^3$

Write the rule:

$(x^a)^b$

May 18-8:42 PM



Adv. Algebra

Agenda:

- Problem-Solving

To Do Now:

- Have your notebook on your desk.

$$x^2 + 14x = 120$$

$$x^2 + 14x - 120 = 0$$

$$(x + \quad)(x - \quad) = 0$$

Warm Up:

The dimensions of a rectangle were 5 cm by 9 cm. When both dimensions were increased by equal amounts, the area of the rectangle increased by 120 cm². Find the dimensions of the new rectangle.

LET $x =$
ADDED AMT

	L	W	AREA	$L \times W = A$
R_1	5	9	45	$(x+5)(x+9) = 15$
R_2	$5+x$	$9+x$	$45+120=165$	$x = -20$ $x = 6$

Wind and Current Problems

These problems involve more than uniform motion. They include influences on the rate of the object that either add to or diminish the rate. For example, if you paddle a canoe upstream versus downstream, the water current will either be added to your paddle rate (downstream) or will be taken away from your paddle rate (upstream).

Example: If you paddle in still water at a rate of 5 miles per hour and the current is 1 mile per hour, what is the rate that you will paddle upstream? Downstream?

Bad News: These don't typically fit into the regular uniform motion table with $D = RT$ configuration

Bad-er News: Some of these problems just may need TWO different variables.

EXAMPLE:

Sam and Janet have rented a canoe. How far upstream can they paddle if their rate in still water is 6 km/h, the rate of the current is 2 km/h, and they must return to their starting point in 3 hours?

Let x = distance in km they can travel upstream.

	Rate	Time	Distance
Upstream	$6 - 2$	$\frac{x}{4}$	x
Downstream	$6 + 2$	$\frac{x}{8}$	x

$$D_u = R(T) \quad D = RT \quad 2x + x = 24$$

$$x = 4(T) \quad T = \frac{D}{R} \quad x = 8$$

$$T = \frac{x}{4} \quad \text{TIME}_u + \text{TIME}_d = \text{TOTAL TIME}$$

$$\frac{x}{4} + \frac{x}{8} = 3$$

May 19-7:12 AM

A jet can travel at 950 km/h with the wind and 700 km/h against the wind. Find the rate of the plane in still air and the wind speed.

Let r = rate of plane in still air (km/h)

Let w = wind speed (km/h)

$$825 + w = 950$$

$$w = 125$$

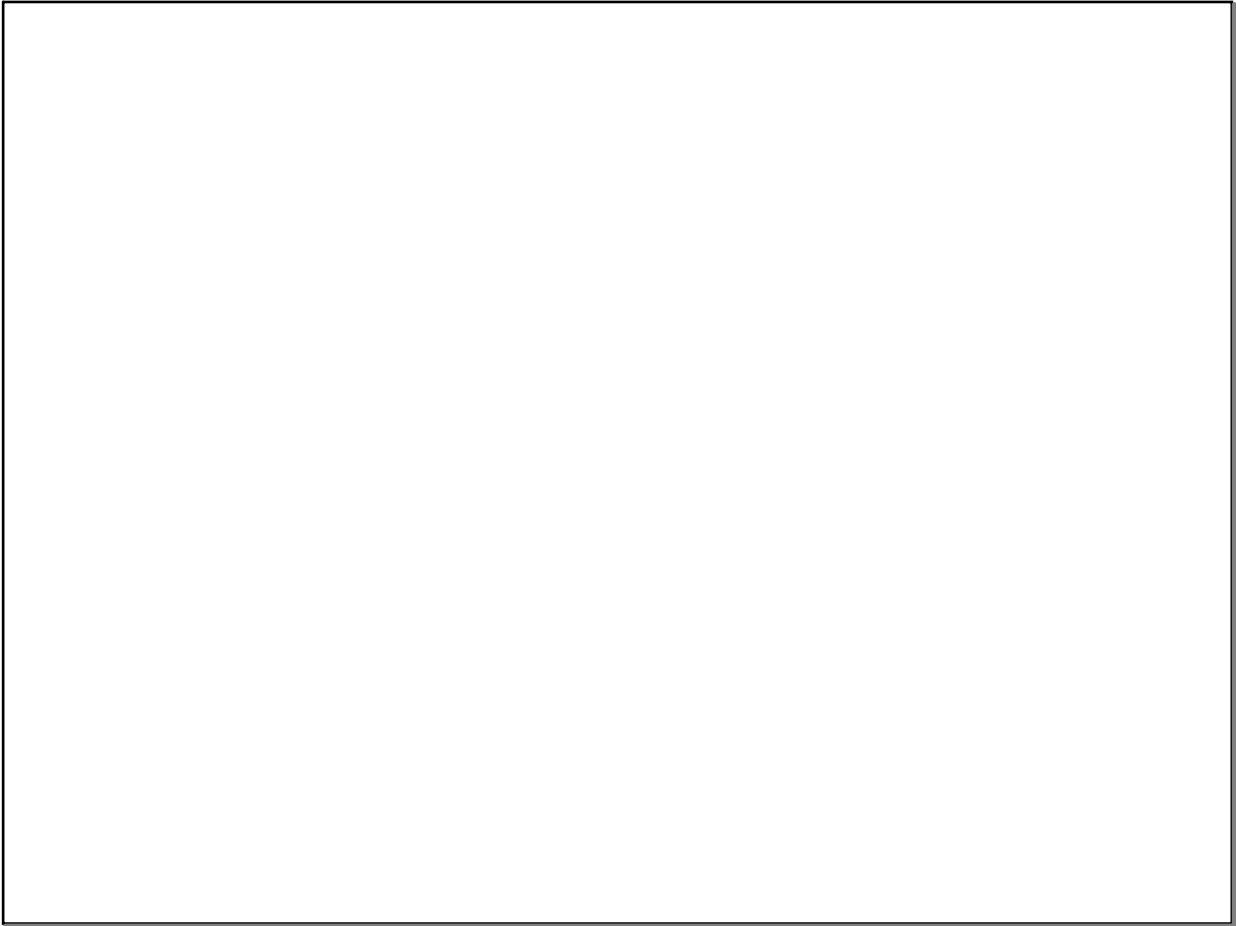
	Rate ₁	Rate ₂
With the wind	$r + w =$	950 km/h
Against the wind	$r - w =$	700 km/h

$$\text{WITH: } \begin{cases} R + w = 950 \\ \text{AGAINST: } R - w = 700 \end{cases}$$

$$\hline 2R = 1650 \quad w = 125$$

$$R = 825$$

May 19-7:32 AM



May 19-7:41 AM