

Warm-up 1-15

Add or subtract each polynomial. Make sure that your answer is in standard form. Identify the leading coefficient and name the polynomial.

1. $(-5m^5 + 6n - 21m) + (-10m + 15m^5 - 12n)$

2. $(7x^3 + 6x^2 - 2x) - (9x^2 - 4x + 3)$

3. $(24xy + 3x - 21y + 3) + (13xy + 7y - 9x - 3)$

Warm-up 1-15

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1. $(-5m^5 + 6n - 21m) + (-10m + 15m^5 - 12n)$

$$\begin{array}{r}
 \cancel{-5m^5} + \cancel{6n} - \cancel{21m} - \cancel{10m} + \cancel{15m^5} - \cancel{12n} \\
 -5m^5 + 6n - 21m \\
 +15m^5 - 12n - 10m \\
 \hline
 10m^5 - 6n - 31m
 \end{array}$$

$$10m^5 - 31m - 6n$$

LC: 10 Quintic Trinomial

2. $(7x^3 + 6x^2 - 2x) - (9x^2 - 4x + 3)$

$$7x^3 + 6x^2 - 2x - 9x^2 + 4x - 3$$

$$7x^3 - 3x^2 + 2x - 3$$

LC: 7 Cubic Polynomial

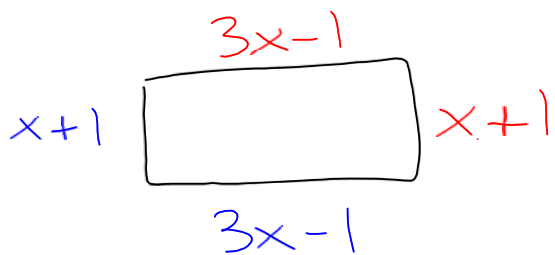
3. $(24xy + 3x - 21y + 3) + (13xy + 7y - 9x - 3)$

$$\cancel{24xy} + \cancel{3x} - \cancel{21y} + \cancel{3} + \cancel{13xy} + \cancel{7y} - \cancel{9x} - \cancel{3}$$

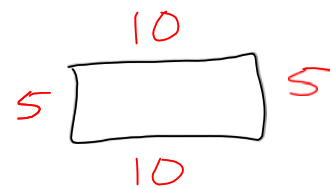
$$\begin{array}{r}
 +24xy + 3x - 21y + 3 \\
 +13xy - 9x + 7y - 3 \\
 \hline
 37xy - 6x - 14y
 \end{array}$$

$$37xy - 6x - 14y$$

LC: 37 Quadratic Trinomial



$$\cancel{3x-1} + \cancel{x+1} + \cancel{3x-1} + \cancel{x+1}$$
$$8x$$



$$2(10) + 2(5)$$
$$20 + 10 = 30$$

Quiz

Section 7.1~ Integer Exponents

What is an integer?

-a positive or negative whole number

A power is a number with a base and an exponent



The base is a repeated factor and the exponent tells how many times the base is multiplied by itself.

Powers are written as:

$$x^4$$

$$3^2$$

Expanded form:

$$x \cdot x \cdot x \cdot x$$

$$3 \cdot 3$$

Verbal form:

x to the fourth power

x raised to the fourth power

3 squared

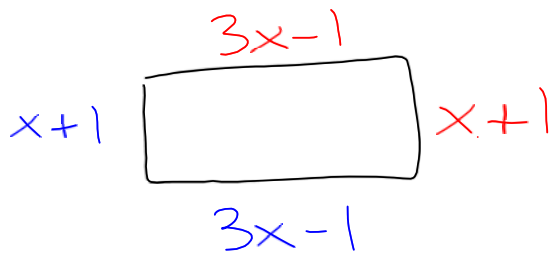
3 times itself

Practice: Write each in expanded form and find the value.

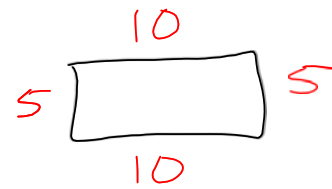
$$3^3 = 3 \cdot 3 \cdot 3$$

$$7^4 = 7 \cdot 7 \cdot 7 \cdot 7$$

$$12^2 = 12 \cdot 12$$



$$\cancel{3x-1} + \cancel{x+1} + \cancel{3x-1} + \cancel{x+1}$$
$$8x$$



$$2(10) + 2(5)$$
$$20 + 10 = 30$$

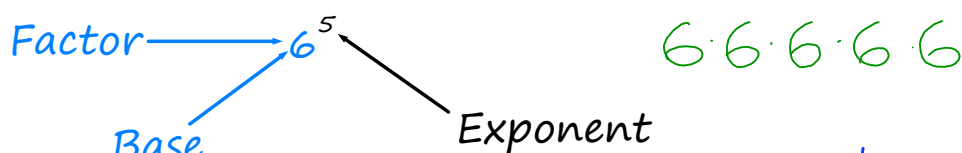
Discovery Activity!

Section 7.1~ Integer Exponents

What is an integer?

-a positive or negative whole number

A power is a number with a base and an exponent



The base is a repeated factor and the exponent tells how many times the base is multiplied by itself.

Powers are written as:

$$x^4$$

$$8^5$$

Expanded form:

~~$$x \cdot x \cdot x \cdot x$$~~

$$8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$$

Verbal form:

x to the power of four
eight raised to the fifth power

Practice: Write each in expanded form and find the value.

$$3^3 = 3 \cdot 3 \cdot 3$$

$$7^4 = 7 \cdot 7 \cdot 7 \cdot 7$$

$$12^2 = 12 \cdot 12$$

$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 2^6$$

Exponent Rules

Product Rule- $x^m x^n = x^{m+n}$

Power Rule- $(x^m)^n = x^{mn}$

Power of a Product Rule- $(xy)^n = x^n y^n$

Power of a Fraction Rule- $\left(\frac{x}{y}\right)^n = \frac{x^n}{y^n}$

Quotient Rule- $\frac{x^m}{x^n} = x^{m-n}$

Definitions:

Exponent Definition- $x^n = \underbrace{xxxxx}_{n\text{-times}}$

Zero Exponent- $x^0 = 1$

Negative Exponent = $x^{-n} = \frac{1}{x^n}$ or $x^n = \frac{1}{x^{-n}}$

Exponent Rules

Product Rule- $x^m x^n = x^{m+n}$ $x^3 x^2 = x^5$

Power Rule- $(x^m)^n = x^{mn}$ $(2^4)^5 = 2^{20}$

Power of a Product Rule- $(xy)^n = x^n y^n$ $(xy)^4 = x^4 y^4$

Power of a Fraction Rule- $\left(\frac{x}{y}\right)^n = \frac{x^n}{y^n}$ $\left(\frac{x}{y}\right)^3 = \frac{x^3}{y^3}$

Quotient Rule- $\frac{x^m}{x^n} = x^{m-n}$ $\frac{x^{10}}{x^6} = x^4$ $x^m x^{-n}$

Definitions:

Exponent Definition- $x^n = \underbrace{xxxxx}_{n\text{-times}}$

$\frac{0}{0} = \text{undef.}$

Zero Exponent- $x^0 = 1$

Negative Exponent = $x^{-n} = \frac{1}{x^n}$ or $x^n = \frac{1}{x^{-n}}$

$\frac{1}{x^{-n}} = x^n$ $\frac{1}{x^n} = x^{-n}$

Homework

Exponents Rules Worksheet #1, 7, 9-11, 22