Learning Center

Schoolcraft College

Jump Start

Session 4

Order of Operations

P_____

E_____

M/D_____

A/S_____

Simplify

$-24 \div 4(5-2)$

$\frac{-6(4^2+2)}{4(1-2^4)}$

Solving Equations (Linear)

Only one rule:_____

But here is some strategy 1._____

2._____

3._____

Solve:

$\frac{2(x-5)}{3} - \frac{1}{5} = 4$

$\frac{2x}{3} - \frac{3}{4} = \frac{1}{2} - x$

Solving Systems of Equations

Solving by Substitution

Solve the system $\begin{cases} 2x + y = 5 \\ 3x - 2y = 11 \end{cases}$

Solving by Elimination

Solve the system $\begin{cases} 3x - 2y = 5 \\ 2x + 5y = 16 \end{cases}$

Exponent Rules (with like bases)

Multiplying exponents:_____ Dividing exponents:_____

$3^2 \cdot 3^4$ $x^5 \cdot x^4$ $\frac{3^5}{3^3}$ $\frac{x^5}{x^9}$

Power to a power:_____ Negative exponents:_____

$(2^4)^3$ $(x^3)^8$ 2^{-3} $\frac{x}{x^{-3}}$

Putting it all together:

1._____

2._____

3._____

$\frac{a^{-2}b^3c^{-2}}{a^4b^{-5}c^2}$ $\left(\frac{-3x^5y^2z^{-1}}{6x^{-2}y^{-2}z}\right)^2$

Roots

Roots are related to exponents. The nth root of a x is the number which, when n copies of it are multiplied together, makes x.

$\sqrt[n]{x} = a$ would mean that _____

Ex:

$\sqrt[3]{8} =$ $\sqrt{4} =$

$\sqrt[4]{81} =$ $\sqrt[4]{-16} =$

Some roots don't come out perfectly but we can still simplify them partially:

Ex:

$\sqrt{12} =$ $\sqrt[3]{16} =$

$\sqrt[3]{81} =$ $\sqrt{72} =$

Polynomials

Distribution: _____

$(x-2)(x+1)$ $(x-3)^2$

$(2x-1)(x^2+3x-4)$

Factoring Polynomials

When factoring, we should always try _____ first.

Factor:

$4x-12$ $3a^2-24a$ $10xy-15x^2+5x$

4 terms: _____

Factor:

$2xy + 6x + 3y + 9$

$3ab + 3b - 2a - 2$

3 terms: _____

Factor:

$x^2 - 3x - 4$

$2x^2 - 8x + 8$

$4x^2 + 14x + 6$

$4x^2 - 8x + 3$

2 terms: _____

Factor:

$x^2 - 9$ $2a^2 - 50$

Sum or Difference of Cubes – remember the formulas

$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$ $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

1. 2. 3. 4.

Factor:

$x^3 + 27$

$8x^2 - 1$