Learning Center

Schoolcraft College

JumpStart

Session 4

Course-Pak

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Addition and Subtraction of Integers

When opposites are added, the result is _____

Ex:

-10+10 25 - 25 -25 + 25

Adding integers:

If the *signs are the same* _____ and keep the _____

$2+2=$ $-25-25=$ $-286+-175=$

If the *signs are different* _____ and keep the sign of the _____

$12-2=$ $-45+20=$ $75-280=$

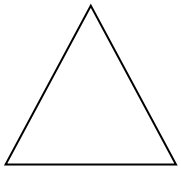
***Note: Double negative = sign change**

$7-(-3)=$ $-10-(-10)=$ $-7-7=$

Multiplication and Division of Integers

Remember these:

To help you remember, use this:



Ex:

$(-3)^2=$ $-24\div 4=$

$10 \bullet -5=$ $-2(-50)=$

$\frac{-28}{0}=$ $\frac{0}{-28}=$

Order of Operations with Integers

P__E__M__D__A__S__

$(6-8)3^2 =$

$3+2(4-3^2) =$

$-65 \div 5 + 2^3 =$

$(-2)^2 + 13 - (-7)$

$5-(-6)+3-16 =$

$\dfrac{-7(3^2-1)}{4(1-2^3)} =$

$\dfrac{5(2^3-3^2)-5}{4-10 \div 5+3} =$

Variables and Expressions

A variable is a letter or symbol used to represent some unknown quantity. Ex:

An expression is a collection of variables, symbols and/or numbers. Ex:

Evaluating Expression

Plug in value for the specified variable using parenthesis.

Evaluate the following expressions for x= 5, y= -2, z= -3

$x(z+1)-y=$ $-z(x-y)$

$2z^2-3z-1=$

Combining Like Terms

You can only add or subtract terms that are (exactly) alike

Combine like terms:

$3x + 2x =$ $\quad a + a =$ $\quad 2y - 12y^2 + y - y^2 =$

Multiplying Integers, Clearing Parenthesis & Combining Like Terms

Distribute to clear parenthesis

$4 \bullet 5n =$ $\quad -4 \bullet 9x =$ $\quad -3(3x) =$

$9(-5y) =$ $\quad 5(2x + 3) =$ $\quad 7(8 - 4x) =$

$5(x + 1) - 3x =$ $\quad 2n - 4(8 - 3n) =$

Equation Solving

Expression:

Equation:

5 Steps to Equation Solving

Never forget ***your goal***! _____

1. _____

2. _____

3. _____

4. _____

5. _____

AND the ***QUEEN MOTHER*** of all algebra rules!!

_____

Single Step Equation Solving

Solve for the given variable:

$x + 2 = 10$ $y - 7 = 9$

$2x = 12$ $-5x = 25$

$\frac{x}{3} = 5$ $-\frac{y}{7} = 40$

Two-Step Equation Solving

Solve for the given variable:

$4x - 3 = -15$ $\frac{w}{2} + \frac{2}{3} = 5$

$12 = -3e + 9$ $\frac{3}{4}c - c = 9$

Multi-Step Equation Solving

$3x - 9 + 5x = 15$

$11y - 3 = 4y + 11$

$-11 = 5n - 56$

$19b - 14 - 21b = -2$

$1 + 2(x + 5) - x = -7(2 - x) + 1$

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Evaluate and simplify.

1. $-21+9=$ 2. $-3-(-4)=$ 3. $-8 \bullet -7=$ 4. $-6(9)=$

5. $\frac{-14}{2}=$ 6. $5 \bullet \frac{-15}{-3}=$ 7. $(-3)^2=$ 8. $\frac{-4}{0}=$

9. $24 \div 2 \bullet 3=$ 10. $-8(2-3) \div -4-1=$ 11. $5-3^2+2^3-(-2)^2=$

Evaluate for $x=-2, y=-3, z=1$

12. $x-y=$ 13. $z+y=$ 14. $x^2-x-10=$

Solve for x

15. $2x=10$ 16. $\frac{x}{3}=-7$ 17. $x-3=-8$

18. $2x-3=-17$ 19. $3x-5=x+1$ 20. $\frac{x}{2}+5=x-3$

JumpStart! 3000 Practice Quest

Evaluate and simplify.

1. $-21+9=-12$ 2. $-3-(-4)=1$ 3. $-8\bullet -7=56$ 4. $-6(9)=-54$

5. $\frac{-14}{2}=-7$ 6. $5\bullet\frac{-15}{-3}=25$ 7. $(-3)^2=9$ 8. $\frac{-4}{0}=$ *undefined*

9. $24\div 2\bullet 3=36$ 10. $-8(2-3)\div -4-1=-3$ 11. $5-3^2+2^3-(-2)^2=0$

Evaluate for $x=-2, y=-3, z=1$

12. $x-y=1$ 13. $z+y=-2$ 14. $x^2-x-10=-4$

Solve for x

15. $2x=10$ x=5 16. $\frac{x}{3}=7$ x=−21 17. $x-3=-8$ x=−5

18. $2x-3=-17$ x=−7 19. $3x-5=x+1$ x=3 20. $\frac{x}{2}+5=x-3$ x=16