UNIT 1: Solving Algebraic Equations
Operations with Integers & BEDMAS

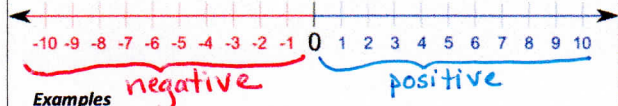**Learning Goal:**

I will learn how to simplify expressions including integers.

Lesson: Operations with Integers & BEDMAS

Adding & Subtracting

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

negative   positive

Examples

a) $-3 + 6 =$ 3

b) $-1 + 7 =$ 6

c) $4 + (-4) + 2 =$
$= 4 - 4 + 2$
makes positive $= 2$

d) $-1 - (9) =$
$= -1 - 9$
$= -10$

e) $8 - (-2) =$
$= 8 + 2$
$= 10$

f) $-12 - (-6) - 1 =$
$= -12 + 6 - 1$
$= -7$

It's Your Turn!

a) $-7 + 9 =$
$= 2$

b) $-5 + 3 =$
$= -2$

c) $8 + (-4) + 1 =$
$= 8 - 4 + 1$
$= 5$

d) $2 - (4) =$
$= 2 - 4$
$= -2$

e) $6 - (-1) =$
$= 6 + 1$
$= 7$

f) $-9 - (-11) - 2 =$
$= -9 + 11 - 2$
$= 0$

Multiplying and Dividing

First, multiply or divide, then choose the sign for the final answer
- same signs equal a <u>positive</u> (eg. -3 x -2 = 6)
- opposite signs equal a <u>negative</u> (eg. -3 x 2 = -6)

same sign = +

Examples

a) $-4 \times 2 =$
$= -8$

b) $-12 \div 2 =$
$= -6$

c) $-1 \times -3 =$
$= 3$

different signs = negative

d) $(5)(-4) =$
$= -20$

e) $\dfrac{45}{5} =$
$= 9$

f) $(-2)(-7) =$
$= 14$

It's Your Turn!

a) $-2 \times 4 =$

$= -8$

b) $-5 \times -3 =$

$= 15$

c) $(5)(-4) =$

$= -20$

d) $9 \div -1 =$

$= -9$

e) $10 \div (-2) =$

$= -5$

f) $\dfrac{-6}{-1} =$

$= 6$

Order of Operations (BEDMAS)

1. Brackets
2. Exponents
3. Division & Multiplication
4. Addition + Subtraction

Simplify

a) $3 + 5 \times 2 =$ — mult. first

$= 3 + 10$

$= 13$

b) $7 \times (5 - 2) =$ — brackets first

$= 7 \times (3)$

$= 21$

c) $4(2) + 3(-1)$

$= 8 + (-3)$

$= 8 - 3$

$= 5$

d) $2(1)(3) - 4$

$= 6 - 4$

$= 2$

e) $2(5) - (1 + 2)^2 =$

$= 2(5) - (3)^2$

$= 2(5) - 9$

$= 10 - 9$

$= 1$

f) $\dfrac{2 + 8}{3 + 2} - \dfrac{14 - 2}{4 - 1}$

$= \dfrac{10}{5} - \dfrac{12}{3}$

$= 2 - 4$

$= -2$

It's Your Turn!

Simplify

a) $2 \times 3 + 1 =$

$= 6 + 1$

$= 7$

b) $6 \times (3 + 4) =$

$= 6 \times (7)$

$= 42$

c) $2(5) + 4(-1)$

$= 10 + (-4)$

$= 6$

d) $2(1)(3) - 4$

$= 6 - 4$

$= 2$

e) $2(5) - (1 + 2)^2 =$

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

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

$= 2(4) - 16$

$= 8 - 16$

$= -8$

f) $\dfrac{2 + 6}{3 + 1} + \dfrac{12 - 2}{4 + 1}$

$= \dfrac{8}{4} + \dfrac{10}{5}$

$= 2 + 2$

$= 4$

UNIT 1: Solving Algebraic Equations
Operations With Integers & BEDMAS

Learning Goal:

I will learn how to simplify expressions including integers.

Success Criteria:

To be successful, I must be able to...

- Add and subtract integers using the number line
- Multiply/divide integers by multiplying/dividing the number, then determining the sign (same signs = positive answer, different signs = negative answer)
- Simplify expressions using BEDMAS

Example:

$-4(1 - 3 + 2) - (5 - 2)$

$= -4(1) - (3)$

$= -4 - 3$

$= -7$

2