

OPERATIONS WITH INTEGERS



Same Signs

Add the numbers and keep the sign.

Examples: $2+4=6$
 $(-3)+(-5)=-8$

Opposite Signs

Subtract the numbers. Then disregard the signs & determine which number is bigger. Use that number's sign in your answer.

Examples: $7+(-4)=3$
 $(-9)+(2)=-7$



Change the subtraction sign to an addition sign and change the sign of the second number. Then, follow the rules for addition.

$$- = +(-)$$

$$-(-) = +(+)$$
 or simply $+$

Examples:

$$(-2)-1 = (-2)+(-1) = -3$$

$$(-9)-(-3) = (-9)+(+3) = (-9)+3 = -6$$

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

$$6-(-10) = 6+(+10) = 6+10 = 16$$



Even # of negative signs \rightarrow Answer is $+$

ODD # of negative signs \rightarrow Answer is $-$

Examples: $(-2)(-3) = 6$
 $(-1)(12)(-2) = 24$
 $(-3)(-3)(-4) = -36$
 $(-7)(2)(5) = -70$
 $(-6)(-1)(-2)(-5) = 60$



Same Sign \rightarrow Answer is $+$

Opposite Sign \rightarrow Answer is $-$

Examples:

$$-10 \div -2 = 5$$

$$24 \div -8 = -3$$

$$\frac{-28}{-4} = 7$$

$$\frac{-12}{15} = \frac{-4}{5}$$
 or $-\frac{4}{5}$

$$\frac{-16}{2} = \frac{-16}{2} = -8$$

Order of Operations

To solve math problems with more than one operation (+ , - , × , ÷), remember this sentence for the correct order:

PLEASE **E**XCUSE **M**Y **D**EAR **A**UNT **S**ALLY
or **PEMDAS**

PLEASE = **P**arenthesis/Grouping Symbol*

EXCUSE = **E**xponents

MY **D**EAR = **M**ultiply and/or **D**ivide left to right

AUNT **S**ALLY = **A**dd and/or **S**ubtract left to right

Do each operation from left to right.

$(6 - 3) + (2 \times 3)^2 \times 4 + (3 + 1)$ First evaluate what's in **P**arenthesis

$3 + 6^2 \times 4 + 4$ Then, evaluate the **E**xponents

$3 + 36 \times 4 + 4$ Next, **M**ultiply and/or **D**ivide from left to right

$3 + 144 + 4$ Last, **A**dd and/or **S**ubtract from left to right

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*Note: Remember that a fraction bar is a grouping symbol. So, if your problem starts as one big fraction, work the numerator and denominator separately as if they are two separate problems. Then, reduce the final answer, if possible.

Helpful YouTube videos: 1) <https://www.youtube.com/watch?v=CIYdw4d4OmA>,

2) <https://www.youtube.com/watch?v=pilcRV2dx7E>, 3) <https://www.youtube.com/watch?v=gjrGd9TijnY>