

Issues with Integers? Self-Help Guide!

SUMMARY OF INTEGER OPERATIONS:

Shown below is a summary of the results acquired through the investigation of operations between integers contained within previous guides, freely offered to address any areas of weakness. This summary is NOT a substitute for understanding and should NOT be used as a list of rules to be memorized. Without understanding, rules are meaningless and are quickly forgotten, once again leaving a gap in these essential math skills. Generalizing the findings of an investigation is a process used by mathematicians throughout history and is a necessary skill for today's math students.

ADDITION

<u>Signs</u>	<u>Sign of Answer</u>	<u>Example</u>
Same	$\left\{ \begin{array}{l} +, + \longrightarrow + \\ -, - \longrightarrow - \end{array} \right.$	$2 + 3 = 5$ $(-2) + (-3) = -5$
	Different	$\left\{ \begin{array}{l} +, - \begin{array}{l} \nearrow + \\ \longrightarrow - \\ \searrow \mathbf{0} \end{array} \\ -, + \begin{array}{l} \nearrow + \\ \longrightarrow - \\ \searrow \mathbf{0} \end{array} \end{array} \right.$

SUBTRACTION

<u>Signs</u>	<u>Sign of Answer</u>	<u>Example</u>	
Same	$\left\{ \begin{array}{l} +, + \begin{array}{l} \nearrow + \\ \longrightarrow - \\ \searrow \mathbf{0} \end{array} \\ -, - \begin{array}{l} \nearrow + \\ \longrightarrow - \\ \searrow \mathbf{0} \end{array} \end{array} \right.$	$3 - 2 = 1$ $2 - 3 = -1$ $2 - 2 = 0$ $(-3) - (-4) = 1$ $(-4) - (-3) = -1$ $(-4) - (-4) = 0$	
	Different	$\left\{ \begin{array}{l} +, - \longrightarrow + \\ -, + \longrightarrow - \end{array} \right.$	$2 - (-3) = 5$ $(-2) - 3 = -5$

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MULTIPLICATION

<u>Signs</u>		<u>Sign of Answer</u>	<u>Example</u>
Same	{ +, +	————→ +	$3 \cdot 4 = 12$
	{ -, -	————→ +	$(-3) \cdot (-4) = 12$
Different	{ +, -	————→ -	$3 \cdot (-4) = -12$
	{ -, +	————→ -	$(-3) \cdot 4 = -12$

DIVISION

<u>Signs</u>		<u>Sign of Answer</u>	<u>Example</u>
Same	{ +, +	————→ +	$12 \div 4 = 3$
	{ -, -	————→ +	$(-12) \div (-4) = 3$
Different	{ +, -	————→ -	$12 \div (-4) = -3$
	{ -, +	————→ -	$(-12) \div 4 = -3$

Additional Note: Division *by* zero is undefined.