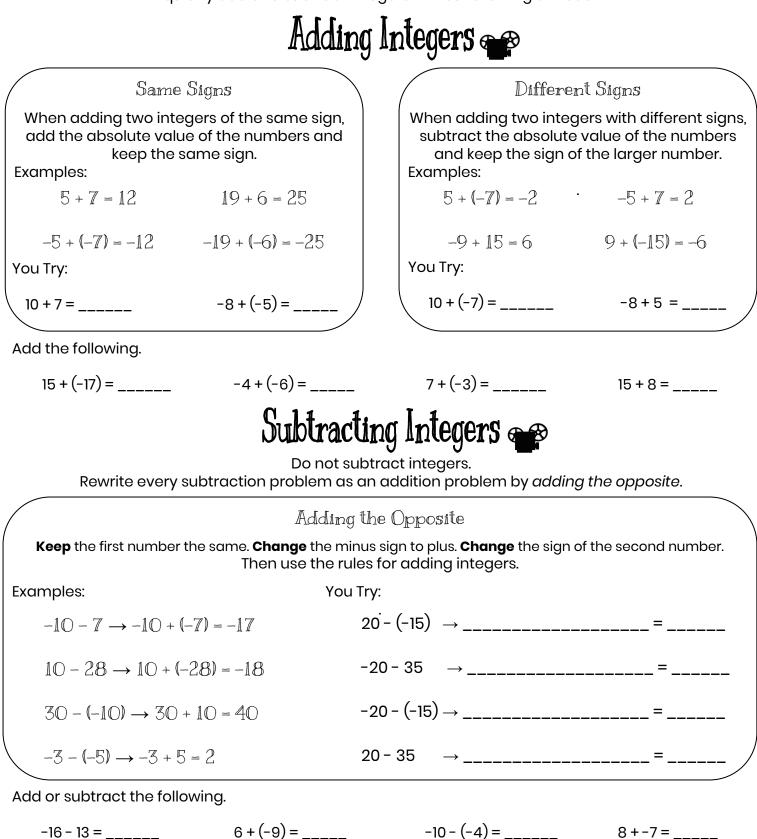
This packet assumes you have already learned how to add and subtract integers using chips Note from sections 2.2 and 2.3 in the 7th Grade Core Focus book: Rational Numbers and Equations.

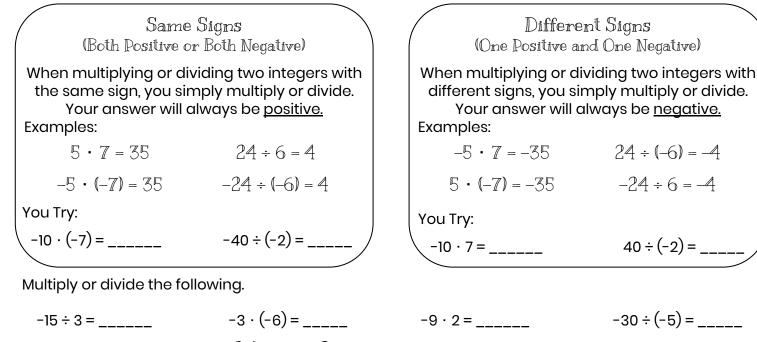
While integer models are helpful when first working with negative numbers, you need to be able to quickly add and subtract integers without drawing a model.



-16 - 13 = \_\_\_\_

#### Multiplying & Dividing Integers

The rules for multiplying and dividing integers are the same.



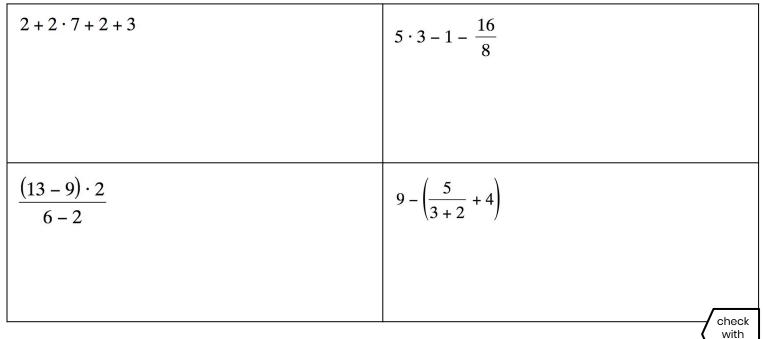
Mixed Operations Practice		
-9 + 13 =	6 - (-15) =	-100 ÷ (-4) =
-3 - (-7) =	-19 + (-7) =	-3 - 4 =
8 · -7 =	72 ÷ (-8) =	-10 - (-31) =
-19 + 11 =	18 - (-6) =	-6 · -6 =
7 + (-11) =	-30 ÷ -3 =	-14 - (-11) =
-7 · -5 =	10 + (-14) =	-9 · 5 =
-9-18=	-54 ÷ -6 =	8 · -3 =
-18 + -13 =	40 ÷ 8 =	5-20 =
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Recall Numerical expressions are evaluated using Order of Operations (or PEMDAS). Grouping Symbols, Exponents, Multiply/Divide left to right and Add/Subtract left to right.

In Algebra, another type of grouping symbols you will see besides parenthesis is the fraction bar line. When evaluating with the fraction bar line you should simplify the top and bottom separately, then divide.

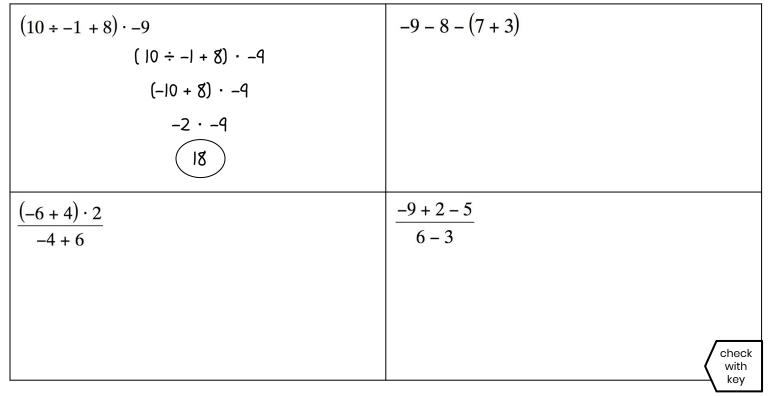
Evaluate each of the following expressions. Show your work.



### Evaluating Expressions with Integers

key

You need to be able to evaluate expressions that also contain negative numbers. When doing this you must following both Order of Operations and the integer rules you practiced in Integers 1.



$-14 \cdot 2 \div 7$ $-1 \div 6 \cdot 2 \div 3$ $-2 \div 2 \cdot 6 \div 4$ $2 \cdot -18 \div (-1 - 2)$ $(10 \cdot 2) \div 4 - (-3)$ $(-3) \cdot 5 \div 12 \div (-3) \cdot 6$ $\frac{13 \div 3}{-3 \cdot -3 - 5}$ $\frac{(-8) - 5 \div 3}{2} - 1$ $5 \div 2 \cdot \frac{8}{1 - 5}$ $(-6 - 1) \cdot \frac{18}{2 - 5}$	Evaluating Expressions with Integers Practice Evaluate each expression. Show your work.		
$2^{-16} + (-1 - 2)$ $(10 \cdot 2) + 4 - (-3)$ $(-3) \cdot 5 + 12 + (-3) \cdot 6$ $\frac{13 + 3}{-3 \cdot -3 - 5}$ $\frac{(-8) - 5 + 3}{2} - 1$ $5 + 2 \cdot \frac{8}{1 - 5}$ $(-6 - 1) \cdot \frac{18}{2 - 5}$ (otherwise)			
$\frac{13+3}{-3\cdot -3-5} \qquad \qquad \frac{(-8)-5+3}{2}-1$ $5+2\cdot\frac{8}{1-5} \qquad \qquad (-6-1)\cdot\frac{18}{2-5}$	-2+2.6+4	$2 \cdot -18 \div (-1 - 2)$	
$\frac{-3 \cdot -3 - 5}{2} - 1$ $\frac{(-6) - 3 + 3}{2} - 1$ $5 + 2 \cdot \frac{8}{1 - 5}$ $(-6 - 1) \cdot \frac{18}{2 - 5}$ (check	$(10 \cdot 2) \div 4 - (-3)$	$(-3) \cdot 5 + 12 \div (-3) \cdot 6$	
check	-33 - 5		
key	$5 + 2 \cdot \frac{8}{1 - 5}$	check with	

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Recall

Algebraic expressions can be simplified by combining like terms. You can combine like terms by adding or subtracting coefficients.

# Simplify each of the following by combining like terms.

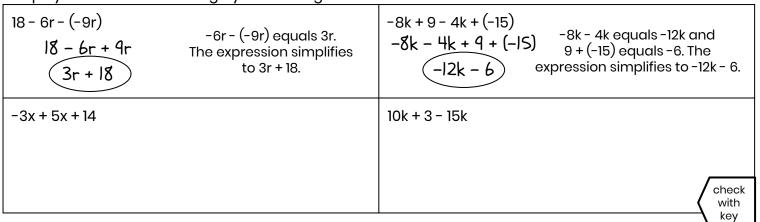
5x - 10x -5x	5 - 10 = -5, therefore 5x - 10x = -5x.	3y - 8y + 2y $-5y + 2y$ $-3y$	Subtract 3y - 8y first to get -5y. Then add -5y and 2y to get -3y.
-14m - 6m		10k - 15k	
8g - (-4g)		-23h + 3h - 4h	check with key

#### Simplify each of the following by combining like terms.

-9m + 2m	8a - 20a
15c + (-3c)	-4e-(-6e)
-2x + 9x - 14x	-8f + (-2f) + (-7f)
-7u + 13u - 4u	-5n - (-3n) + (-14n)
-7u + 13u - 4u	-511- (-311) + (-1411)
4r + 2r - (-10r) - r	8y - 7y - 15y + 10y
	check
	with

Simplify each of the following by combining like terms.





Simplify each of the following by combining like terms.

	1
-3p - 4 + 9p	-9-3k-6+2k
10y + 5 - (-2y) + 17	-5x + 4 + 5x
-4-9k+k+6	3 + 4n - 8n - 6
-9a + 4 - 9a - 8	-r + 11 - 11r
10 + 11p + (-3p) - 12	n + 6 - 9n - (-8)
	check with
	key

Recall

Algebraic expressions can be simplified using Distributive Property. Multiply the coefficient to entire expression inside parentheses.

#### Distributive Property with Integers

Simplify each of the following by performing the distributive property.

-4(r + 3) -4r + 12	Distribute the -4. Multiply r and 3 by -4 to get -4r + 12.	-(2e + 8) -2e - 8	Distribute the -1. Multiply 2e and 8 by -1 to get -2e - 8
-9(n + 8)		-(5h - 10)	
			check with key

Simplify each of the following by performing the distributive property.

-5(1- 8v)	6(x - 7)
-(7a + 5)	-6(1+9n)
8(5 - 5a)	-9(-r + 1)
-(-4r - 1)	-4(6 + m)
-(2 - 10m)	8(4h + 6)
	check with key

Simplify each of the following by performing the distributive property then combining like terms.

-7(j + 3) + 10j		-5(2y - 7) + 4y - 30
-7j - 2l + 10j -7j + 10j - 2l 3j - 2l	Distribute the -7. Multiply j and 3 by -7 to get -7j -21. Then combine like terms.	-10y + 35 + 4y - 30 -10y + 4y + 35 - 30 -6y + 5 Distribute the -5. Multiply 2y and -7 by -5 to get -10y + 35. Then combine like terms.
-4(7 - k) - 8k		-10(5 + 5k) - 5k
5 - 2(x + 4) 5 - 2x - 8	Distribute the -2. Multiply x and 4	7 - (x - 2) Distribute the -1. Multiply x and -2
-2x+5-8 $(-2x-3)$	by -2 to get -2x -8. Then combine like terms.	7 - x + 2 -x + 9 7 - x + 2 -x + 9 Distribute the 1. Multiply x and 2 by -1 to get $-x + 2$ . Then combine like terms.
5x - 4(2x + 6)		4b - (b + 10)
		check

Simplify each of the following by performing the distributive property then combining like terms.

key

5 - 2(x + 4)	7 - (x - 2)
3k - 5(3 - 8k)	-8(2-3x)-9x
5 - 2(m + 2)	-4(10 + 5w) + 20 - 6w
	check with
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## Solving One-Step Equations Solve each one step equation.

-6y = 24 $\div -6  \div -6$	5n = -30	-2h=-20
÷ -6 ÷ -6		
y = -4		
8k = -48	-3p = 21	-2r = -30
		check
		with key

#### Solving Two-Step Equations

Solve each two step equation.

4x - 9 = -29 + $q$ + $q$	10 - 7b = -88	-a + 4 = 16
4x = -20		
÷4 ÷4		
x = -5		
-18 = -4 + 7r	-4-4y=32	-23 = 5 - 7x
		check with key

#### Combining Like-Terms Before Solving

Combine like terms. Then solve the remaining equation.

4x - 3 - 9x = 27	9n - 4 + 3 = -19	1- 4m- 2m = 25
-5x - 3 = 27		
+3 +3		
-5x = 30		
÷-5 ÷-5		
x = -6		check with
		key

#### Distributive Property Before Solving

Simplify using distributive property. Then solve the remaining equation.

-3(n+2) = 39	9(6 + v) = -54	117 = 9(-n - 7)	
-3n - 6 = 39			
+ 6 + 6			
-3x = 45			
÷ -3 ÷ -3			
x = -15		check with	
Variables on Both Sides			
Solve each equation by moving the variables to one side.			
-12 + 5x = -3x + 4	-10 + 4n = n - 1	6 + 6n = 15 + 7n	
+ 3x + 3x			
-12 + 8x = 4			

-12 + 8x = 4	
+  2 +  2	
8x = 16	
÷ 8 ÷ 8	
x = 2	

## Solving Multi-Step Equations

Solve each multi-step equation.

-2(x-3) = -19 + 5x	-130 = -6(5 + 6a) + 8
-2x + 6 = -19 + 5x	
+ 2x + 2x	
6 = -19 + 7x	
+ 19 + 19	
21 = 7x	
÷7 ÷7	
3 = x	
7y + 5(4y + 1) = -157	4(g - 4) = 16 + 8g
	check
	with key
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check with

key