

<p><b>1.</b> Write as a mixed number</p> <p>(a) <math>\frac{20}{13}</math></p>  <p>Write as an improper fraction</p> <p>(b) <math>4\frac{3}{5}</math></p>	<p><b>2.</b> Multiply and simplify.</p> <p>(a) <math>\frac{5}{7} \cdot \frac{35}{26}</math></p>  <p>Divide and simplify</p> <p>(b) <math>\frac{6}{17} \div \frac{3}{7}</math></p>
<p><b>3.</b> Add and simplify</p> <p>(a) <math>\frac{3}{12} + \frac{5}{12} + \frac{2}{12}</math></p>  <p>Subtract and simplify</p> <p>(b) <math>\frac{15}{28} - \frac{1}{28}</math></p>	<p><b>4.</b> Add and simplify</p> <p>(a) <math>\frac{5}{6} + \frac{3}{8}</math></p>  <p>Subtract and simplify</p> <p>(b) <math>\frac{18}{20} - \frac{3}{5}</math></p>

<p><b>5. Evaluate</b></p> <p><b>(a)</b> <math>(1.5)^2</math></p>       <p><b>(b)</b> <math>\left(\frac{1}{12}\right)^2</math></p>	<p><b>6. Evaluate</b></p> <p><b>(a)</b> <math>\sqrt{\frac{4}{49}}</math></p>       <p><b>(b)</b> <math>3\sqrt{16}</math></p>
<p><b>7. Evaluate</b></p> <p><b>(a)</b> <math>50 \div 5 \times 2</math></p>       <p><b>(b)</b> <math>8^2 + 5(9 - 3)</math></p>	<p><b>8. Evaluate</b></p> <p><b>(a)</b> <math>(7\sqrt{25} - 5 \cdot 6)^2</math></p>       <p><b>(b)</b> <math>\frac{9^2 - 9 \cdot 5}{10 - 2 \cdot 3}</math></p>

**9.** Evaluate each expression using  $a = 4$ ,  $b = 2$  and  $c = 1$

**(a)**  $b^2 + 4a - c$

**(b)**  $\frac{5c - a}{2b}$

**10.** Translate each to an algebraic expression

**(a)** two less than four times a number

**(b)** six times the sum of a number and three

**11.** Check mark each set to which these numbers belong:

Set	-8	$\frac{1}{5}$
N		
Whole Nos.		
Z		
Q		
Irrational Nos.		
R		

**12.** Evaluate

**(a)**  $-6 + -15 + 6$

**(b)**  $-12 + (-0.45)$

**13.** Evaluate

**(a)**  $145.5 + (-152.6)$

**(b)**  $-\frac{4}{7} + \left(-\frac{7}{10}\right)$

**14.** Evaluate

**(a)**  $-12 - 9$

**(b)**  $\frac{1}{5} - \left(-\frac{1}{8}\right)$

**15.** Evaluate

**(a)**  $(-2.3)(-3.1)$

**(b)**  $-\frac{4}{6} \cdot \frac{30}{23}$

**16.** Evaluate

**(a)**  $40 \div (-5)$

**(b)**  $-\frac{4}{5} \div \left(-\frac{10}{3}\right)$

<p><b>17. Evaluate</b></p> <p><b>(a)</b> <math>-5^2 - 5^2</math></p> <p><b>(b)</b> <math>8 \cdot \left(-\frac{1}{12}\right)</math></p>	<p><b>18. Evaluate</b></p> <p><b>(a)</b> <math>24 - 7(6 - 10)</math></p> <p><b>(b)</b> <math>-1 + \frac{4}{5}</math></p>
<p><b>19. Let <math>a = -5</math> and <math>b = -3</math> and evaluate</b></p> <p><b>(a)</b> <math>a + b</math></p> <p><b>(b)</b> <math>2b + 5ab</math></p>	<p><b>20. Let <math>x = -4</math> and <math>y = -3</math> and evaluate</b></p> <p><b>(a)</b> <math>x^2 - y^2</math></p> <p><b>(b)</b> <math>x^2 - 5y + xy</math></p>

<p><b>21.</b></p> <p><b>(a)</b> Use the commutative property of multiplication to rewrite</p> $x \cdot (-5)$ <p><b>(b)</b> Use the associative property of multiplication to rewrite</p> $(-7a) b$	<p><b>22.</b> Simplify</p> <p><b>(a)</b> <math>(-7 + x) + 14</math></p> <p><b>(b)</b> <math>10\left(\frac{3}{5}a\right)</math></p>
<p><b>23.</b> Use the distributive property to rewrite and simplify</p> <p><b>(a)</b> <math>6(x + 5)</math></p> <p><b>(b)</b> <math>-12(3a - 4)</math></p>	<p><b>24.</b> What property is illustrated by each of the following?</p> <p><b>(a)</b> <math>7 + (x + y) = (7 + x) + y</math></p> <p><b>(b)</b> <math>7 + (x + y) = 7 + (y + x)</math></p>

**25.** Find the additive inverse (opposite) and the multiplicative inverse (reciprocal) for each number

	Additive Inverse	Multiplicative Inverse
14		
$-\frac{2}{13}$		

**Addition Table**

+	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18	19	20

**Multiplication Table**

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

**Rules for Signed Numbers**

Addition				Subtraction			
Positive	+	Positive	= Positive	$A - B = A + (-B)$			
<b>POSITIVE</b>	+	Negative	= Positive				
Positive	+	<b>NEGATIVE</b>	= Negative				
Negative	+	Negative	= Negative				
Numbers in bold, capital letters have a greater magnitude than nonbold, lower case partner number.							
Multiplication				Division			
Positive	×	Positive	= Positive	Positive	÷	Positive	= Positive
Positive	×	Negative	= Negative	Positive	÷	Negative	= Negative
Negative	×	Positive	= Negative	Negative	÷	Positive	= Negative
Negative	×	Negative	= Positive	Negative	÷	Negative	= Positive

**Rules for Fractions**

For any real numbers,  $a, b, c,$  and  $d, b \neq 0, c \neq 0,$  and  $d \neq 0$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c} \qquad \frac{a}{c} - \frac{b}{c} = \frac{a-b}{c} \qquad \frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd} \qquad \frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$$

**Distributive Property**

For any real numbers,  $a, b, c,$  and  $d$

$$a(b + c) = ab + ac$$