Math 101, Exam 1, Practice Test Name_____

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

5. Evaluate

(a) $(1.5)^2$

(b) $\left(\frac{1}{12}\right)^2$

6. Evaluate

(a) $\sqrt{\frac{4}{49}}$

(b) $3\sqrt{16}$

7. Evaluate

(a) $50 \div 5 \times 2$

(b) $8^2 + 5(9 - 3)$

8. Evaluate

(a) $\left(7\sqrt{25} - 5 \bullet 6\right)^2$

(b) $\frac{9^2 - 9 \bullet 5}{10 - 2 \bullet 3}$

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

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

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

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	$\frac{1}{5}$
$\mathbb{N}$		
Whole Nos.		
$\mathbb{Z}$		
$\mathbb{Q}$		
Irrational Nos.		
$\mathbb{R}$		

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) $-\frac{4}{6}\bullet\frac{30}{23}$

16. Evaluate

(a) 40 ÷ (–5)

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

17. Evaluate

(a) $-5^2 - 5^2$

(b) $8 \bullet \left(-\frac{1}{12} \right)$

18. Evaluate

(a) $24 - 7(6 - 10)$

(b) $-1 + \frac{4}{5}$

19. Let $a = -5$ and $b = -3$ and evaluate

(a) $a + b$

(b) $2b + 5ab$

20. Let $x = -4$ and $y = -3$ and evaluate

(a) $x^2 - y^2$

(b) $x^2 - 5y + xy$

21.

(a) Use the commutative property of multiplication to rewrite

$$x \bullet (-5)$$

(b) Use the associative property of multiplication to rewrite

$$(-7a)\, b$$

22. Simplify

(a) $(-7 + x) + 14$

(b) $10\left(\frac{3}{5}a\right)$

23. Use the distributive property to rewrite and simplify

(a) $6(x + 5)$

(b) $-12(3a - 4)$

24. What property is illustrated by each of the following?

(a) $7 + (x + y) = (7 + x) + y$

(b) $7 + (x + y) = 7 + (y + x)$

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	$A - B = A + (-B)$
POSITIVE	+	Negative	=	Positive	
Positive	+	**NEGATIVE**	=	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 $d \neq 0$

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

Distributive Property

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

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