Math 260, Chapters 7 and 8, Practice Test Questions

1. (a)

	Is this a counting number? (Circle one)
1.3	Yes No

(b)

	Is this a counting number? (Circle one)
13	Yes No

2. (a)

	Is this an integer? (Circle one)
–2	Yes No

(b)

	Is this an integer? (Circle one)
–2.3	Yes No

3. (a)

	Is this a rational number? (Circle one)
$\sqrt{24}$	Yes No

(b)

	Is this a rational number? (Circle one)
$\sqrt{25}$	Yes No

4. Write as a ratio of two integers

(a)

$18 = \frac{\square}{\square}$

(b)

$8.5 = \frac{\square}{\square}$

5. Use the commutative property to rewrite

(a)

$9 + 2 = \square + \square$

(b)

$3 \cdot 4 = \square \bullet \square$

6. Use the associative property to rewrite

(a)

$(1 + 2) + 3 = \square + (\square + \square)$

(b)

$(1 \cdot 2) \cdot 3 = \square \bullet (\square \bullet \square)$

7. Simplify

(a)

$(25 + 2) + 5 =$

(b)

$(4 \cdot 2) \cdot 5 =$

8. Simplify

(a)

$13m + 9n + 7m =$

(b)

$10\ (2\ m) =$

9. Use the distributive property to multiply and simplify

(a)

$4(x + 3) =$

(b)

$-2(5x - 6) =$

10. Use the distributive property to multiply and simplify

(a)

$7(x + 5) + 8(x + 1)$

(b)

$9(2x - 3) - 4(x - 5)$

11. Use the distributive property to multiply and simplify

$2(8x - \frac{1}{2}) =$

12. Use the distributive property to multiply and simplify

$\frac{2}{3}(\frac{1}{2}x - \frac{1}{4}) =$

13. Simplify.

(a)

$$\frac{0}{18}$$

(b)

$$\frac{18}{0}$$

14. Solve.

(a)

$$n - 12 = 30$$

(b)

$$x + 9 = -14$$

15. Solve.

(a)

$$5n + 2 = 32$$

(b)

$$4x - 8 = -40$$

16. Solve.

(a)

$$12c = 144$$

(b)

$$\frac{2}{3}x = 10$$

17. Solve. $10y = -5y + 45$	**18.** Solve. $6n + 2 = 4n + 18$
19. Two-thirds of the children in a kindergarten class are girls. If there are 18 girls, what is the total number of children in the class?	**20.** The number of dishes in a dishwasher is 10 less than the number of glasses. If there are 12 dishes, what is the number of glasses?

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

Symbol	**Name**	**Description**	**Notation or examples**
$\mathbb{N}$	Natural Numbers	The counting numbers beginning with 1.	$\mathbb{N} = \{1, 2, 3, \ldots\}$
	Whole Numbers	The counting numbers and zero.	$\{0, 1, 2, 3, \ldots\}$
$\mathbb{Z}$	Integers	The whole numbers and their opposites.	$\mathbb{Z} = \{\ldots -3, -2, -1, 0, 1, 2, 3, \ldots\}$ *Z comes from the German word for number, zahlen, since I is used for Imaginary Numbers.*
$\mathbb{Q}$	Rational Numbers	Numbers of the form $\frac{a}{b}$ where a is an integer and b is a nonzero integer.	Examples: $\frac{1}{3}, 10.5, -\frac{13}{2}, 12, \sqrt{4}$ *Q is for quotient, since R is used for Real Numbers.*
	Irrational Numbers	Real numbers that are not rational numbers.	Examples: $\pi, \sqrt{2}, 5\sqrt{15}$
$\mathbb{R}$	Real Numbers	All rational and irrational numbers.	All of the above.

Properties	
Commutative Property of Addition	For any real numbers a and b, $a + b = b + a$
Commutative Property of Multiplication	For any real numbers a and b, $ab = ba$
Associative Property of Addition	For any real numbers a, b, and c $(a + b) + c = a + (b + c)$
Associative Property of Multiplication	For any real numbers a, b, and c $(ab)c = a(bc)$
Distributive Property	For any real numbers a, b, and c $a(b + c) = ab + ac$ and $(a + b)c = ac + bc$
Additive Identity Property	For any real number a, $a + 0 = 0 + a = a$
Multiplicative Identity Property	For any real number a, $a \cdot 1 = 1 \cdot a = a$
Additive Inverse Property	For any real number a, there is a unique real number $-a$ such that $a + (-a) = 0$
Multiplicative Inverse Property	For any nonzero real number a, there is a unique real number $1/a$ such that $a \cdot \frac{1}{a} = 1$
Multiplication Property of Zero	For any real number a, $0 \cdot a = 0$ and $a \cdot 0 = 0$