

## Math 980 Modules 1 and 2 Objectives Review

Please study the following objectives from modules one and two before taking your first exam. This review provides you with sample problems that correspond to the objectives given, however, **the problems on your first exam will not be exactly like the problems on this review**. You should go back and study your notes and look at all of the different types of problems that reinforce the objectives below. You can still watch the video lessons as another resource for preparing for your exam.

### Module 1 - Linear Equations in One Variable

#### **1.1 Solve One-Step Linear Equations**

1.) Solve:  $-x = 7$

2.) Solve:  $\frac{a}{-6} = -3$

#### **1.2 Solve Two-Step Linear Equations**

3.) Solve:  $-8 + 2y = -2$

4.) Solve:  $10 - 4x = 20$

#### **1.3 Solve Linear Equations by Combining Like Terms and the Distributive Property**

5.) Solve:  $-9x - 1 + 8x = 2 + 9$

6.) Solve:  $2(b - 6) - 3b = 8 - 7$

#### **1.4 Solve Linear Equations with Variables on Both Sides of the Equation**

7.) Solve:  $5z + 8 = -4z + 5$

8.) Solve:  $6 + 3x - 2 = 7x - 2(2x - 8)$

#### **1.5 Solve Linear Equations Containing Fractions**

9.) Solve:  $\frac{1}{4}y - 3 = \frac{1}{7}y$

10.) Solve:  $\frac{x}{6} + x = \frac{5}{12}$

### 1.5 Solve Proportions

11.) Solve:  $\frac{x}{x+8} = \frac{2}{3}$

12.) Solve:  $\frac{x-9}{7} = \frac{x+3}{8}$

### 1.6 Solve Linear Equations Containing Decimals

13.) Solve:  $0.6x - 0.27 = 0.5x - 2.25$

14.) Solve:  $0.25(x + 50) - 0.03(x - 40) = 15.9$

### 1.7 Solve Applications Using Linear Equations

15.) The sum of five times a number and eight is 12. Find the number.

16.) The difference of two times a number and six is nine more than the number. Find the number.

17.) The sum of three consecutive integers is 33. List the numbers from smallest to largest.

18.) The sum of two consecutive odd integers is 92. List the numbers from smallest to largest.

19.) The sum of three consecutive even integers is  $-198$ . List the numbers from smallest to largest.

20.) A rectangular room is 3 meters longer than it is wide, and its perimeter is 30 meters. Find the dimensions of the room.

21.) A bag is filled with yellow and orange marbles. There are 97 marbles in the bag. If there are 25 more yellow marbles than orange marbles, find the number of yellow marbles and the number of orange marbles in the bag.

22.) A board that is 16 inches long is cut into two pieces. The longer piece is 3 times longer than the other piece. How long are the pieces?

### 1.8 Solve Applications of Variation and Percents

23.)  $y$  varies directly as  $x$ . If  $x = 7$  then  $y = 35$ . Find  $y$  when  $x = 3$ .

24.)  $y$  varies inversely as  $x$ . If  $x = 2$  then  $y = 6$ . Find  $y$  when  $x = 8$ .

25.) The weekly pay Charlotte receives varies directly with the number of hours she works. If she works 39 hours, she makes \$637.65. How much money would she make if she works 29 hours?

26.) What number is 7.8% of 114? Round answer to two decimal places as needed.

27.) 120 is what percent of 350? Round answer to one decimal place as needed.

28.) 39.36 is 48% of what number?

29.) At a restaurant the bill comes to \$79.00. If you decide to leave an 18% tip, how much total will you pay after including the tip?

30.) If the first chapter of a book is 16 pages long and makes up 4% of the book, how many pages does the entire book have?

### 1.9 Evaluate Formulas

31.) Determine the surface area of a box with length of 6 cm, width of 3 cm, and height of 10 cm. Use the formula :  $A = 2LH + 2WH + LW$

32.) Find the volume of a box with length of 6 cm, width of 3 cm, and height of 10 cm. Use the formula:  $V = LWH$

### 1.9 Solve a Formula for a Given Variable

33.) Solve for a.

$$2 = \frac{1}{4} ax$$

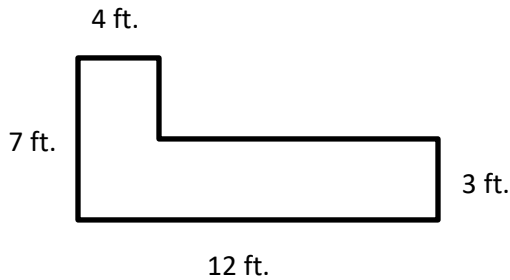
34.) Solve for y.

$$ax + by = c$$

### 1.9 Solving Areas

35.) A garden is a rectangular with a width of 6 feet and a length of 5 feet. If it is surrounded by a walkway 3 feet wide, how many square feet of area does the walkway cover?

36.) Find the area of the figure pictured below



## Module 2 – Linear Inequalities and Absolute Value

### **2.1 Solve, Graph, and Give Interval Notation for Linear Inequalities with One Variable**

37.) Solve, graph, and give interval notation for the inequality:

$$-7 + 4x \leq 1$$



38.) Solve, graph, and give interval notation for the inequality:

$$-3x + 9 < 0$$



### **2.2 Solve Applications Using Linear Inequalities**

39.) Sarah's goal is to find a job that provides an income of at least \$65,000 a year. A company offers her a job paying a base salary of \$17,000 a year, plus a commission of 4% of her sales. Determine the amount Sarah's total sales will need to be for her to have a yearly income greater than or equal to \$65,000.

40.) A student has scores of 80, 68, and 75 on his first three tests. He needs an average of at least 73 to earn a C in the class. What is the minimum score that a student needs on the fourth test to ensure a C?

### **2.3 Find the Intersection and Union of Sets**

41.) Given Set A = {1, 5, 7, 11, 14, 16, 17, 18, 20} and Set B = {7, 8, 15, 16, 18, 19, 20}

List the elements in the set  $(A \cup B)$

List the elements in the set  $(A \cap B)$

### 2.3 Solve, Graph, and Give Interval Notation for Compound Inequalities (Disjunction)

42.) Solve, graph, and give interval notation for the compound inequality:

$$3x - 2 < -11 \text{ OR } 4x - 4 \geq -8$$

←—————→

43.) Solve, graph, and give interval notation for the compound inequality:

$$-\frac{2}{3}x + 2 \geq 5 \text{ OR } 5x > -5$$

←—————→

### 2.4 Solve, Graph, and Give Interval Notation for Compound Inequalities (Conjunction)

44.) Solve, graph, and give interval notation for the compound inequality:

$$4(2x - 3) \leq 12 \text{ AND } -8x - 7 < -5x - 8$$

←—————→

45.) Solve, graph, and give interval notation for the compound inequality:

$$-4x - 1 > -13 \text{ AND } 2(x + 1) \leq 10$$

←—————→

46.) Solve, graph, and give interval notation for the compound inequality:

$$-13 < 4x - 1 < 7$$

←—————→

47.) Solve, graph, and give interval notation for the compound inequality:

$$2 \leq 3x + 2 < 11$$



### 2.5 Solve Absolute Value Equations

48.) Solve the absolute value.

$$|x + 5| = 10$$

49.) Solve the absolute value.

$$7|x| - 1 = 41$$

### 2.6 Solve, Graph, and Give Interval Notation for Absolute Value Inequalities

50.) Solve, graph, and give interval notation for the inequality:

$$|2x - 1| > -5$$



51.) Solve, graph, and give interval notation for the inequality:

$$|4x - 9| > 4$$



52.) Solve, graph, and give interval notation for the inequality:

$$|3x - 4| \leq 2$$



## 2.7 Identify the Domain, Range, and Determine Whether the Relation is a Function

53.) Find the domain and range of the relation:  $\{(-6, 7), (-6, 6), (-6, 5), (-6, 4)\}$ .

The domain is:

The range is:

Is the relation a function?

Why?

54.) Find the domain and range of the relation:  $\{(8, 2), (7, 2), (6, 2), (5, 2)\}$ .

The domain is:

The range is:

Is the relation a function?

Why?

## 2.7 Find the Domain of Functions

55.) Find the domain of  $h(x) = \frac{1}{x+4}$  Write your answer in interval notation.

56.) Find the domain of  $f(x) = \sqrt{2x - 1}$  Write your answer in interval notation.

## 2.7 Evaluate Functions

57.) Given the function  $f(x) = 3x^2 + 3x - 8$ , calculate the following values:

$f(2) =$

$f(-2) =$