

## Semester 1 Review Packet

### Chapter 1: Sample and Display Data

#### VOCAB

biased      box-and-whisker plot      clusters      frequency table  
interquartile range      matrix      measures of central tendencies      outlier      percentile  
quartiles      sample      scatterplot

- 1) A number that is much greater or much less than the other values in a set of data is known as a(n) \_\_\_\_\_.
- 2) \_\_\_\_\_ divide a set of data arranged in numerical order into four equal parts.
- 3) \_\_\_\_\_ are isolated groups of values in a set of data.
- 4) The mean, median and mode are \_\_\_\_\_ that represent a middle value of a data set.
- 5) A(n) \_\_\_\_\_ records the number of times a response occurs.
- 6) A(n) \_\_\_\_\_ uses a number line to show the distribution of data.
- 7) A rectangular arrangement of data in rows and columns enclosed in brackets is called a(n) \_\_\_\_\_.
- 8) A(n) \_\_\_\_\_ is a representative part of a population.
- 9) The relationship of two sets of data can be shown using a(n) \_\_\_\_\_.

#### Multiple Choice: Circle the correct answer.

- 10) You will be collecting information on how athletes at your school view good sportsmanship. Each of the coaches have sent you a roster. You plan to write the names of pieces of paper and select 20 names out of a hat to choose the students you will interview. What type of sampling method is this?
- a) cluster sampling      c) random sampling  
b) convenience sampling      d) systematic sampling

11) What measure of central tendency is determined by finding the middle value when the data are arranged in numerical order?

- a) mean
- b) mode
- c) median
- d) range

12) The stem and leaf plot shows the number of minutes that music is played in one hour on nine radio stations. Find the range of the data.

- a) 9
- b) 18
- c) 42
- d) 50

13) What kind of correlation does the data in the scatter plot show?

- a) positive
- b) negative
- c) no correlation
- d) cannot be determined

14) Find the second quartile in the data: 14.1, 16.4, 12.3, 10.9, 12.0, 9.2, 15.5

- a) 10.9
- b) 12
- c) 12.2
- d) 12.3

15) Use the box-and-whisker plot to determine what percent of the highest recorded wind speeds in the U.S. range from 40 to 70mph.

- a) 25 %
- b) 50%
- c) 75%
- d) 100%

**Show Your Work**

16) The histogram shows the number of hours worked each week by part-time employees.

a) What is the most common number of hours worked?

b) How many employees work less than 20 hours?

c) How many part-time employees are there?

17) A hotel charges the following daily rates for its different types of rooms

\$78 \$120 \$65 \$84 \$150 \$79

a) Find the mean, median, mode and range of this data.

Mean: \_\_\_\_\_ Median: \_\_\_\_\_ Mode: \_\_\_\_\_ Range: \_\_\_\_\_

b) The hotel used the median to advertise its average room rate. Is this misleading?

18) The number of games won by the *Chicago Cubs* during the past eleven seasons is shown in the stem and leaf plot below.

a) During how many seasons did the team win 50 or fewer games?

b) What is the range of the number of games won?

c) During how many seasons did the team win more than 60 games?

## Chapter 2: Foundations of Algebra

### VOCAB

absolute value      base   coordinate   exponent      numerical expression      opposites  
order of operations      scientific notation      simplify      standard form      variable

19) Two different integers that are the same distance from zero on the number line but in the opposite directions are \_\_\_\_\_.

20) A(n) \_\_\_\_\_ is a symbol used to represent a number.

21) The distance a number is from zero on the number line is the \_\_\_\_\_ of the number.

22) The number that corresponds to a point on a number line is called the \_\_\_\_\_ of the point.

23) A(n) \_\_\_\_\_ is two or more numbers joined by operations such as addition, subtraction, multiplication and division.

24) The \_\_\_\_\_ of a number written in exponential form tells how many equal factors are being multiplied.

25) To \_\_\_\_\_ a variable expression, perform as many of the indicated operations as possible.

26) The \_\_\_\_\_ are a set of rules that specify which operations must precede other operations in order to properly evaluate expressions.

27) The \_\_\_\_\_ of  $1.2 \times 10^5$  is 120,000.

**Multiple Choice: Choose the correct answer.**

28) If  $a = -3$  and  $b = 3$ , then which of the following statements is *false*?

- a)  $|a| > 2$                       c)  $|b| < 2$   
b)  $|a| = |b|$                       d)  $|a| = b$

29) The Rockies scored more than four runs than the Cubs scored. Which expression represents the number of runs the Cubs scored if the Rockies scored  $n$  runs?

- a)  $n+4$                       b)  $4n$                       c)  $4-n$                       d)  $n-4$

30) Simplify  $\frac{40x - 16}{-8}$

- a)  $32x + 8$                       b)  $-5x + 2$                       c)  $-5x - 16$                       d)  $5x - 2$

31) Which expression is equivalent to  $2(y + 7) - 3(y + 7)$ ?

- a)  $-y - 7$                       b)  $2y + 7$                       c)  $-y + 7$                       d)  $-y + 14$

32) Simplify  $\left(\frac{n^7}{n^5}\right)^4$

- a)  $n^6$                       b)  $n^8$                       c)  $n^{13}$                       d)  $n^{23}$

33) A human blinks about  $6.25 \times 10^6$  times a year. What is this number in standard notation?

- a) 625,000                      b) 6,250,000                      c) 62,500,000                      d) 625,000,000

34) What is the value of  $(14 - 4) \div 2 + 3^2$ ?

- a) 14                      b) 19                      c) 35                      d) 64

35) Write each expression as a variable expression:

Six more than a number \_\_\_\_\_ nine less than a number \_\_\_\_\_

The product of a number and eight \_\_\_\_\_

The difference of four and twice a number \_\_\_\_\_

36) Using the order of operations, simplify each expression.

a)  $20 + 8 \times 2$

b)  $(18 - 2) \cdot 3 + 4^2$

c)  $2[18 - (5 + 3^2) \div 7]$

37) Simplify.

a) $5x + 7x$	b) $5mn + 3mn - 2mn$	c) $-3x - 5x + 8y$	d) $2(x + 4)$
e) $-4(2 - xy)$	f) $\frac{14x + 7}{7}$	g) $5(rs + s) - 3(rs - s)$	h) $6(y - 3) - 4y$
i) $x^3 x^5$	j) $(n^2)^4$	k) $\frac{16b^6}{4b^2}$	l) $(3y^2)^3$
m) $x^{-8} \cdot x^3$	n) $y^{-2} \cdot y^{-5}$	o) $\frac{a^{-3}}{a^2}$	p) $\frac{d^5}{d^9}$

38) Write each number in scientific notation.

a) 0.00385 \_\_\_\_\_

b) 9,380,000,000 \_\_\_\_\_

### Chapter 3: Equations and Inequalities

#### VOCAB

equation   equivalent   cross products   formula   inequality   proportion   solutions

- 39) A value of the variable that makes an equation true is called a(n) \_\_\_\_\_ of the equation.
- 40) A mathematical sentence that states that "a is greater than or equal to -6" is an example of a(n) \_\_\_\_\_.
- 41) The statement  $-8+2=-6$  is an example of a false \_\_\_\_\_.
- 42) One way to solve a proportion is to write an equation using the \_\_\_\_\_.
- 43) An equation stating the relationship between two or more variable quantities is called a(n) \_\_\_\_\_.
- 44) When you add the same number to each side of an inequality, the result is a(n) \_\_\_\_\_ inequality.
- 45) The statement "1 is to 2 as 5 is to 10" is an example of a(n) \_\_\_\_\_.

#### Multiple Choice: Choose the correct answer.

- 46) An online music store charges \$12 for each CD and \$5 per order for shipping and handling. If  $c$  represents the numbers of CDs ordered, which rule can be used to determine the cost of the order.
- a)  $12c + 5$       b)  $5c + 12$       c)  $12c - 5$       d)  $5c - 12$
- 47) What is the solution of  $\frac{2x+3}{6} = \frac{x-4}{4}$ ?
- a) 18      b)  $\frac{1}{2}$       c)  $-\frac{1}{2}$       d) -18
- 48) What is the solution of  $-2x + 3 \leq 5$ ?
- a)  $x \leq -1$       b)  $x \geq 1$       c)  $x \geq -1$       d)  $x < -1$



55) Solve each equation.

a) $d - 9 = 9$	b) $48 = -8n$	c) $\frac{x}{6} = -2$	d) $5x - 13 = 32$
e) $-\frac{2}{3}n + 10 = 24$	f) $0 = 0.5x - 1$	g) $8g - 19 + g = 71$	h) $35 = 3x + 1 - 5x$
i) $\frac{6}{21} = \frac{28}{x}$	j) $\frac{x}{45} = \frac{8}{40}$	k) $\frac{y-5}{7} = \frac{y+11}{3}$	l) $x^2 = 100$
m) $\sqrt{y} = 225$	n) $\sqrt{y+9} = 3$	o) $\sqrt{y} - 7 = 2$	p) $11 + 9j^2 = 15$

## Chapter 4: Probability

### VOCAB

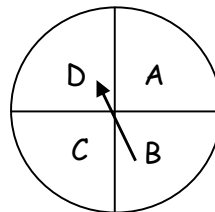
act it out    addition    compound events    dependent    event    experiment  
multiplication    mutually exclusive    sample space    tree diagram    one

- 56) A(n) \_\_\_\_\_ is an activity that is used to produce data that can be observed and recorded.
- 57) When you use objects to represent elements of the problem, you are using the \_\_\_\_\_ strategy.
- 58) A(n) \_\_\_\_\_ contains all the possible outcomes of an experiment.
- 59) Any outcomes or combination of possible outcomes of an experiment is considered a(n) \_\_\_\_\_.
- 60) Problems dealing with \_\_\_\_\_ any ask for the probability of one event and/or another occurring.
- 61) When one event affects the outcomes of another event, the events are called \_\_\_\_\_.
- 62) The fundamental counting principle uses \_\_\_\_\_ to determine the number of possibilities.
- 63) The sum of all probabilities of a specific event is \_\_\_\_\_.

### Multiple Choice: Choose the correct answer.

64) How many outcomes are there for rolling a number cube and spinning the spinner at the right?

- a) 36            c) 12  
b) 24            d) 10



65) What is the probability of drawing a club or an ace out of a standard deck of card?  $P(\text{club OR ace}) =$

- a)  $\frac{1}{13}$             b)  $\frac{4}{13}$             c)  $\frac{17}{52}$             d) 0

66) The forecast predicts a 40% chance of rain on Wednesday and a 60% chance of rain on Thursday. If these probabilities are independent, what is the chance that it will rain on both days?

- a) 2.4%      b) 20%      c) 24%      d) 100%

67) There are 10 socks in a drawer: 2 yellow, 2 green, 2 blue, 2 white and 2 red. If you pull out one sock and then another sock without replacing the first, what is the probability of choosing two blue socks?

- a)  $\frac{1}{90}$       b)  $\frac{1}{9}$       c)  $\frac{1}{5}$       d)  $\frac{2}{9}$

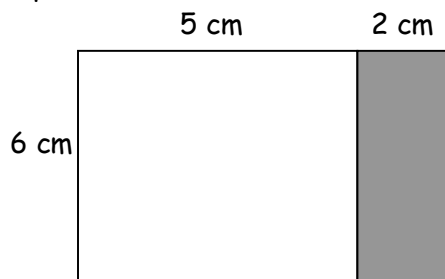
68) In a random survey of students, 152 students could swim and 48 could not. What is the probability that a student can swim?

Ratio: \_\_\_\_\_      Decimal: \_\_\_\_\_      Percent: \_\_\_\_\_

69) Suppose you spin two spinners, one marked 1 through 4 and the other marked A through E. How many possible outcomes are there?

70) An ice cream store sells 24 different flavors and offers a choice of 3 sizes of cones and 5 types of sprinkles. How many choices of a cone with sprinkles are there?

71) Find the probability that a point selected at random lies in the shaded region.



Ratio: \_\_\_\_\_      Decimal: \_\_\_\_\_      Percent: \_\_\_\_\_

72) Two dice are rolled. Find P(sum is 6 OR 10).

Ratio: \_\_\_\_\_      Decimal: \_\_\_\_\_      Percent: \_\_\_\_\_

73) Using a standard deck of 52 cards, find....

a)  $P(\text{club})$

b)  $P(\text{red AND } 7)$

c)  $P(\text{even number AND red})$

d)  $P(\text{Jack OR Ace})$

e)  $P(\text{black OR } 5)$

74) A box contains 2 green cards, 3 red cards and 5 blue cards. Cards are picked one at a time, and not replaced. Find each probability...

a)  $P(\text{blue, then red})$

b)  $P(\text{green, then blue})$

## Chapter 6: Graphing Functions

### VOCAB

y-axis

y-intercept

x-axis

slope

75) On a coordinate plan, the horizontal axis is called the \_\_\_\_\_.

76) The \_\_\_\_\_ of a line is the ratio of its change in vertical distance compared to its change in horizontal distance.

77) The \_\_\_\_\_ is the point where the graph of the line crosses the y-axis.

78) The vertical axis on a coordinate plane is called the \_\_\_\_\_.

Write the formulas...

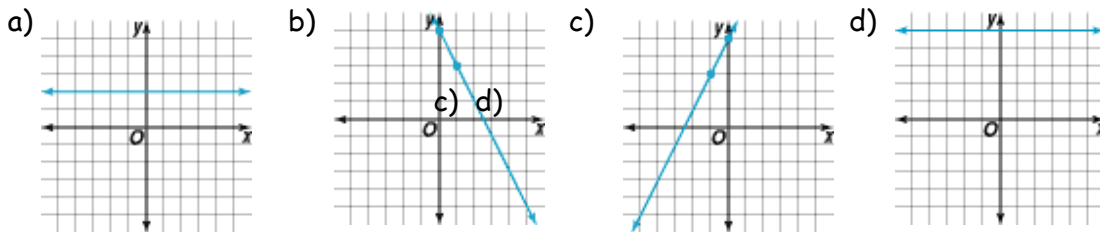
Slope = \_\_\_\_\_

Distance formula= \_\_\_\_\_ Midpoint Formula = \_\_\_\_\_

Slope-Intercept form: \_\_\_\_\_ Point-Slope form: \_\_\_\_\_

**Multiple Choice: Choose the correct answer.**

79) Graph  $y = 2x + 5$ .



80) Determine the slope of the line that passes through (2,2) and (5,8)

- a)  $\frac{10}{7}$       b) 2      c)  $\frac{1}{2}$       d) -2

81) Find the slope of the line that passes through (-2,9.5) and (4,5).

- a) undefined      b)  $-\frac{3}{4}$       c)  $\frac{3}{4}$       d) 0

82) Write an equation of the line that has  $m = -6, b = 1$

- a)  $y = 1x - 6$       b)  $y = -6x - 1$       c)  $y = -6x + 1$       d)  $y = -x - 6$

83) Identify the slope and y-intercept for each line.

- a)  $y = 2x + 1$       b)  $x + 2y = 4$       c)  $-\frac{1}{2}x + y = 4$

m= \_\_\_\_\_ b= \_\_\_\_\_      m= \_\_\_\_\_ b= \_\_\_\_\_      m= \_\_\_\_\_ b= \_\_\_\_\_

Use the graph at the right for #'s .....

84) Find the length of  $\overline{KL}$ .

85) Find the length of  $\overline{MN}$ .

86) Find the length of  $\overline{OP}$ .

87) Find the slope of each segment above...

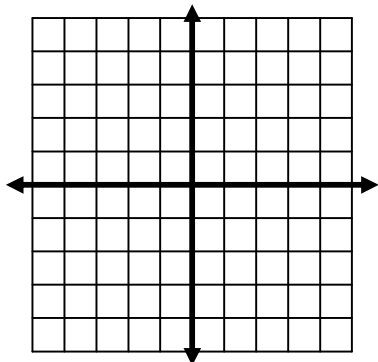
Slope of  $\overline{KL}$  =

Slope of  $\overline{MN}$  =

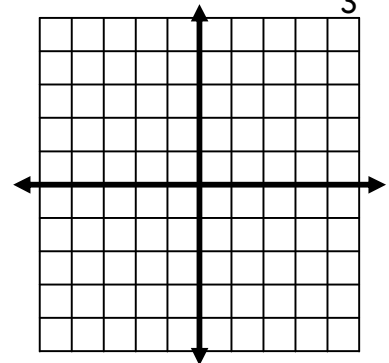
Slope of  $\overline{OP}$  =

88) Find the midpoint of  $\overline{OP}$ .

89) Graph the line that passes through  $(1, -2)$  and has a slope of 3.



90) Graph the line that passes through the original and has a slope of  $-\frac{2}{3}$ .



91) Write an equation of each line from the given information (slope-intercept OR point-slope form).

a)  $m = \frac{3}{2}, b = 0$

b)  $m = 3, (-2, 4)$

c)  $(3, -4), (8, -3)$

