

**North Dakota Department of Public Instruction**  
**Title I**  
**Sixth Grade Math Standards**

Student: \_\_\_\_\_

School Year: \_\_\_\_\_ Grade: \_\_\_\_\_

Teacher: \_\_\_\_\_

- \_\_\_\_\_ Recognize the equivalent forms among fractions, decimals, and percents.
- \_\_\_\_\_ Recognize that a fraction can represent parts of a whole, division, or a ratio.
- \_\_\_\_\_ Compare and order positive fractions, decimals, and percents.
- \_\_\_\_\_ Recognize factors, prime factors, multiples, and divisibility.
- \_\_\_\_\_ Recognize the placement of integers on a number line.
- \_\_\_\_\_ Compare and order integers.
- \_\_\_\_\_ Multiply and divide decimals.
- \_\_\_\_\_ Add and subtract fractions with unlike denominators.
- \_\_\_\_\_ Use problem solving strategies to solve and justify the results of problems.
- \_\_\_\_\_ Estimate the results of problems involving fractions and decimals.
- \_\_\_\_\_ Use order of operations to simplify expressions.
- \_\_\_\_\_ Recognize relationships between pairs of angles, including adjacent, vertical, complementary, and supplementary.
- \_\_\_\_\_ Use ordered pairs to locate a point on a coordinate grid.
- \_\_\_\_\_ Predict the changes in size, position, and orientation of two-dimensional figures after transformations, including reflection, rotation, translation, and dilation.
- \_\_\_\_\_ Organize, select, and use an appropriate display including a frequency table, a line or bar graph after collecting data.
- \_\_\_\_\_ Calculate the mean, median, mode, (measures of central tendency) and range (measure of spread).
- \_\_\_\_\_ Count possible outcomes using strategies such as organized lists, tree diagrams, or Venn diagrams.
- \_\_\_\_\_ Use numerical values from 0 to 1 and ratios to represent probability.
- \_\_\_\_\_ Convert unit measurements within the same system (metric and customary).
- \_\_\_\_\_ Use formulas and appropriate tools and units to determine the measurements needed to calculate perimeter, circumference area, surface area, and volume.
- \_\_\_\_\_ Represent and analyze a variety of patterns with tables and graphs.
- \_\_\_\_\_ Use a variable to represent an unknown quantity.
- \_\_\_\_\_ Use representations such as graphs, tables, and equations to solve problems.

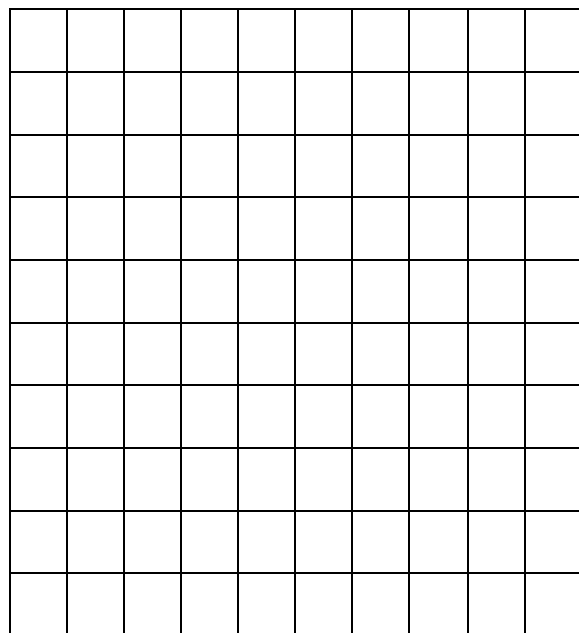
# Title I Math Test

## Sixth Grade Standards

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Shade in  $\frac{1}{5}$  of the grid shown at the right.



2. Represent the shaded part in question 1 as a percent.

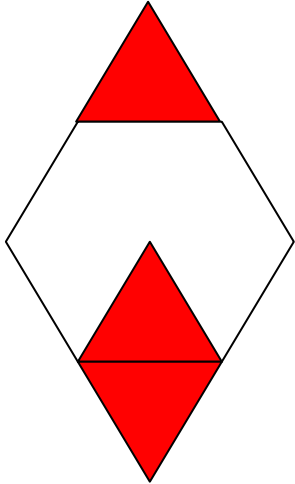
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3. Represent the shaded part in question 1 as a decimal.

\_\_\_\_\_

4. What fraction of the figure is shaded?

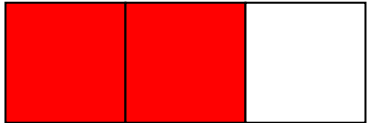
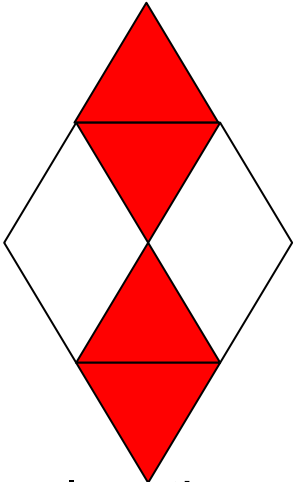
\_\_\_\_\_



5. What percent does the fraction in question 4 represent?

\_\_\_\_\_

6. Circle the figure that has the greatest percentage shaded out of the whole figure. Justify your answer by written language or by showing your work mathematically.



Written explanation:

\_\_\_\_\_  
\_\_\_\_\_

7. List the prime factorization of 120.

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8. List the prime factorization of 300.

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9. List all factors of 48.

\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

10. Find the greatest common factor of 36 and 48.

\_\_\_\_\_

11. Is 3 a factor of 123? Why or why not?

Yes or No? Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

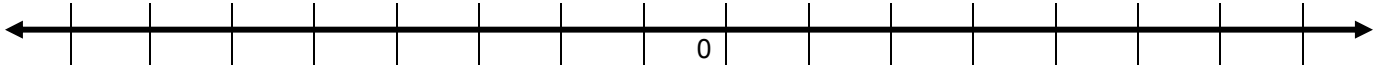
\_\_\_\_\_

12. Find the least common multiple of 14 and 20.

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13. List the first four multiples of 6. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

14. Place the following integers on the number line below.  
-4, -1, 5



Place  $<$ ,  $>$ , or  $=$  in the space provided to make the statement true.

15.  $.0034$  \_\_\_\_\_  $.005$

16.  $4.3$  \_\_\_\_\_  $.456798$

17.  $\frac{1}{3}$  \_\_\_\_\_  $\frac{3}{8}$

18.  $\frac{5}{6}$  \_\_\_\_\_  $\frac{7}{8}$

19.  $-20$  \_\_\_\_\_  $-22$

20.  $-4$  \_\_\_\_\_  $-3$

Use the following information to answer questions 21 and 22. Express your answer in simplest form, if necessary.

21. There are four tulips, five roses, and eight carnations in a vase. What is the ratio of tulips to the total number of flowers.

\_\_\_\_\_

22. What is the ratio of the total number of roses and carnations to the total number of flowers.

\_\_\_\_\_

Multiply and round to the nearest hundredth.

$$\begin{array}{r} \boxed{23.} \quad 4.567 \\ \quad \times \quad 18 \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{24.} \quad 98.405 \\ \quad \times \quad .056 \\ \hline \end{array}$$

Divide and round to the nearest hundredth.

$$\boxed{25.} \quad 4.0293 \div 6 = \underline{\hspace{2cm}}$$

$$\boxed{26.} \quad 79.056 \div 17 = \underline{\hspace{2cm}}$$

Add. Write the answer in simplest form.

$$\begin{array}{r} \boxed{27.} \quad 4 \frac{1}{2} \\ + \quad 3 \frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{28.} \quad 10 \frac{5}{8} \\ + \quad 5 \frac{2}{3} \\ \hline \end{array}$$

Subtract. Write the answer in simplest form.

$$\begin{array}{r} \boxed{29.} \quad 15 \frac{7}{8} \\ - \quad 4 \frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{30.} \quad 8 \frac{1}{3} \\ - \quad 3 \frac{3}{4} \\ \hline \end{array}$$

31. Order the following decimals from the least to the greatest. 4.0932, 4.09, .99934, .09924

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

Simplify.

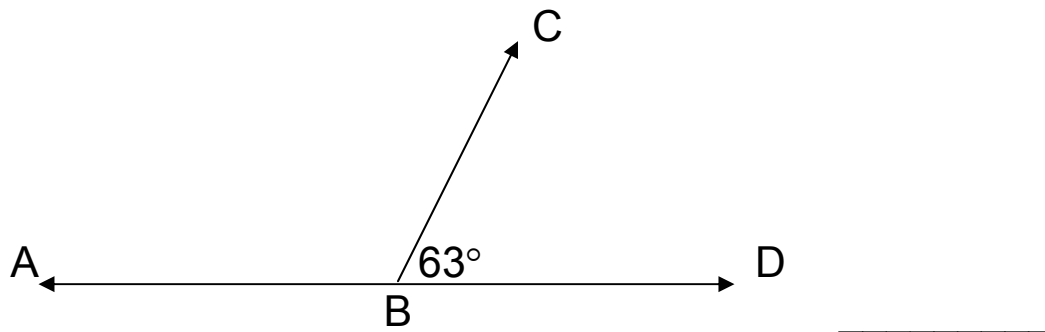
32.  $4 \times 3 + 4 \div 2 =$  \_\_\_\_\_

33.  $5 - 2 + (8 \div 4) =$  \_\_\_\_\_

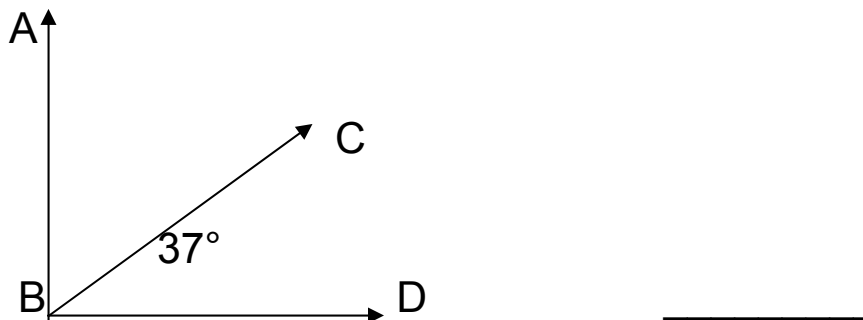
34.  $4 + 16 \div 2 =$  \_\_\_\_\_

35.  $(5 \times 2) - (8 - 6) =$  \_\_\_\_\_

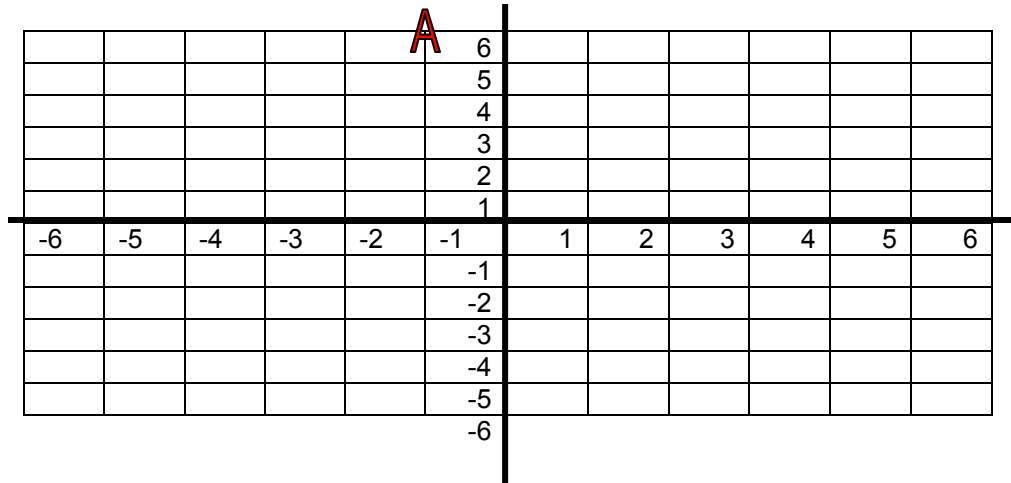
36. With the information given, find the measurement of  $\angle ABC$ .



37. With the information given, find the measurement of  $\angle ABC$ .



38. Find the ordered pair for point A.



39. Plot the following ordered pairs on the coordinate Plane above:  $x=(2,3)$ ,  $y=(-3,2)$  and  $z=(3,0)$ .

40. Walmart is selling 5 cans of dog food for \$2.55. K-Mart is selling the same dog food at 15 cans for \$7.50. Estimate the total cost of 15 cans sold at Walmart. Give the estimated answer rounded to the nearest dollar amount. \_\_\_\_\_

41. Which store in question 40 has the better deal? Justify your answer by written language or by showing your work.

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

42. Mark is traveling 300 miles to his brother's house and he only has \$40.00 for gas. His car gets 15 miles per gallon. If a gallon of gas costs \$1.89 per gallon, will he have enough money to get to his brother's house? Justify your answer by written language or show your work?

Explain:

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Find the mode, median, mean, and range for the following set of numbers. (2, 4, 9, 15, 2, 2, 1)

43. Mode: \_\_\_\_\_

44. Median: \_\_\_\_\_

45. Mean: \_\_\_\_\_

46. Range: \_\_\_\_\_

47. A student's four math test scores were 79, 62, 95, and 84. What is the student's average test score?

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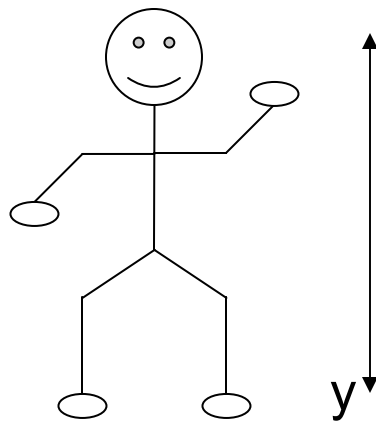
48. What is the range of the student's test scores in question number 47?

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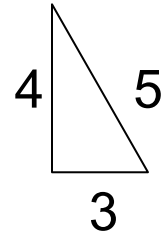
49. There are three flavors of ice cream available at Bob's Ice Cream Parlor. They are strawberry, vanilla, and chocolate. Matthew wants to try all three, so he orders a cone with three scoops. List all the possible ways the three scoops can be arranged on his cone.

50. Joe has three shirts and four pair of pants. How many different outfits can he make by wearing different shirts with different pants? Draw a diagram or make a list to represent the different outfits.

51. Draw a reflection of the stick man across the y-axis.

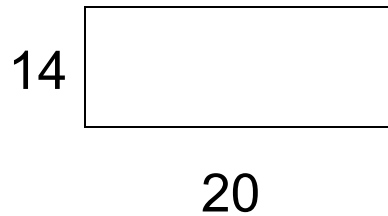


52. Find the area of the polygon shown below. Dimensions are shown in inches.



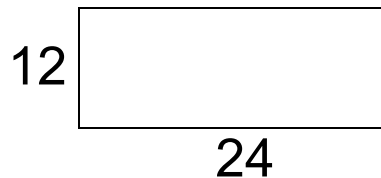
\_\_\_\_\_

53. How many square feet would be required to replace carpet in a room that is 14 feet wide and 20 feet long?



\_\_\_\_\_

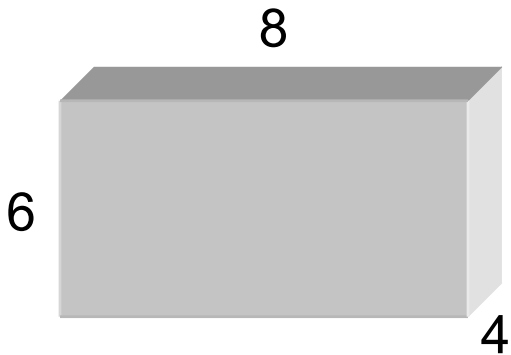
54. Find the perimeter of the polygon shown below. Dimensions are in inches.



\_\_\_\_\_

55. George bought 40 feet of fence to build a rectangle pen for his dog. Draw one example of a pen using the total amount of fence George bought and include the measurements of each side.

56. Find the volume of the rectangle prism shown below. Dimensions are in inches.



\_\_\_\_\_

57. How many cubic inches would fit in a rectangle prism that has a width of 4 inches, the height of 3 inches, and the lenth of 10 inches.

\_\_\_\_\_

58. Find the area of a circle with the radius of 3. Dimensions are in inches.

\_\_\_\_\_

59. Find the circumference of a circle with the diameter of 8. Dimensions are in inches.

\_\_\_\_\_

60. How many inches of ribbon would you need to go around the outside edge of a lid. The radius of the lid is 5. \_\_\_\_\_

61. How many square inches of pizza do you have if the diameter is 16 inches? \_\_\_\_\_

Convert the following:

62. 180 inches = \_\_\_\_\_ feet

63. 1.5 km = \_\_\_\_\_ m

64. 5 yards = \_\_\_\_\_ feet

65. 45.6 mm = \_\_\_\_\_ m

66. Complete the chart to determine a puppy's weight after six weeks. The puppy weighs two pounds at birth and gains three pounds every week. At this rate, how much will the puppy weigh each week over a six week period. Fill in your answers on the chart.

Number of weeks	Weight of the Puppy
0	2
1	
2	
3	
4	
5	
6	

Represent the following equation by using a variable (n).

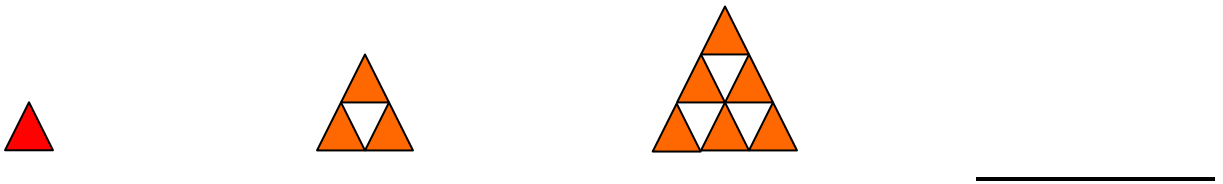
67. A number increases by 5 is equal to 12. \_\_\_\_\_

68. Four less than a number is equal to 17. \_\_\_\_\_

69. Write the next three numbers of the pattern.

1, 2, 4, 8, \_\_\_\_, \_\_\_\_, \_\_\_\_.

70. How many shaded triangles will be in the next figure?  
Look for a pattern.



Use the bar graph below to answer questions 71 and 72.

71. Approximately how many more males than females like strawberry ice cream over chocolate ice cream? \_\_\_\_\_

72. Which flavor did the greatest number of females choose?  
\_\_\_\_\_

