



## Keystone National Middle School Math Level 8 Placement Exam

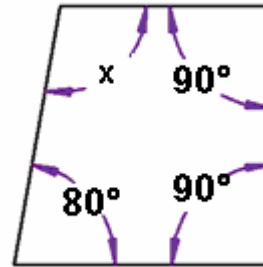
1) A cookie recipe calls for the following ingredients:

1  $\frac{1}{4}$  cups flour  
 $\frac{3}{4}$  cup sugar  
 $\frac{1}{2}$  cup chocolate chips  
 $\frac{1}{4}$  cup peanuts

What is the total amount of all four ingredients?

- a) 1  $\frac{3}{4}$  cups
- b) 2  $\frac{1}{2}$  cups
- c) 2  $\frac{3}{4}$  cups**
- d) 3  $\frac{1}{4}$  cups

2) In the quadrilateral below, find the measurement in degrees for  $x$ ?



- a) 70°
- b) 80°
- c) 90°
- d) 100°**

3) The temperature on the planet Mars varies widely during the course of a day, from about,  $-17.2^{\circ}$  C just before dawn to about  $-107^{\circ}$  C in the afternoon. Approximately what would the temperature be in Fahrenheit?

- a) 1° F and  $-161^{\circ}$  F**
- b) 11° F and  $117^{\circ}$  F
- c) 27° F and  $-77^{\circ}$  F
- d) 32° F and  $98^{\circ}$  F

4) You borrow \$500 from a local bank to purchase your first car. The loan has a rate of 12% simple interest. If you do not make any payments that year, how much interest will you owe at the end of the year?

- a) 30
- b) 60**
- c) 90
- d) 120

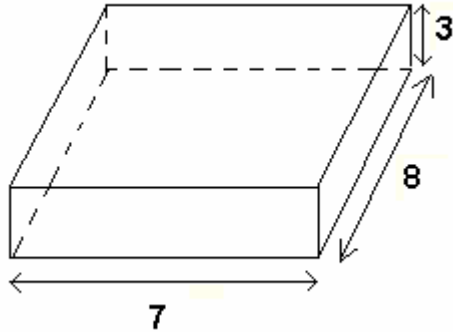
5)  $7.3 \times 10^{-5}$  is written in scientific notation. How would it be written in standard form?

- a) .000073**
- b) .0000073
- c) 730,000
- d) 7,300,000

6) What is the value of the expression:  
 $5 + 2[(4 + 2)^2 - (3^3 + 2)]$

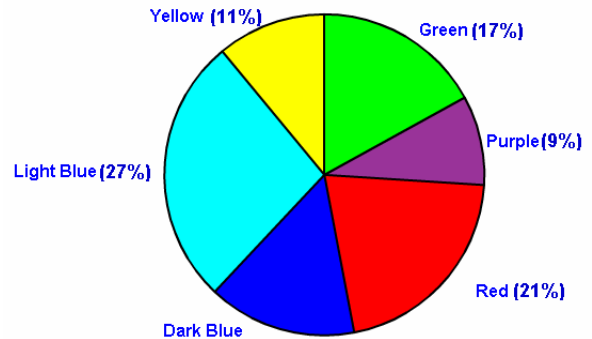
- a) 8
- b) 14
- c) 19**
- d) 49

7) Using the values below, calculate the volume of the rectangular prism.



- a) 18
- b) 56
- c) 59
- d) 168

8) According to the graph below, what percent of the people pick dark blue as their favorite color?



- a) 14%
- b) 15%
- c) 16%
- d) 17%

9) A spinner has 4 equal sectors colored yellow, blue, green and red. When spinning the spinner, what is the probability of landing on each color?

- a)  $\frac{1}{4}$
- b)  $\frac{1}{2}$
- c)  $\frac{1}{8}$
- d)  $\frac{2}{3}$

10) For lunch today, you spent \$5.89 on a combo meal and \$2.13 on a milk shake at a local restaurant. Estimate the cost of today's lunch?

- a) \$4
- b) \$6
- c) \$8
- a) \$10

11) Dan is buying sweatshirt that regularly cost \$40. It is on sale for 10% off. If the tax rate is 5%, which of the following is closest to sale price of the sweatshirt including tax?

- a) \$25.00
- b) \$32.00
- c) \$38.00
- d) \$40.00

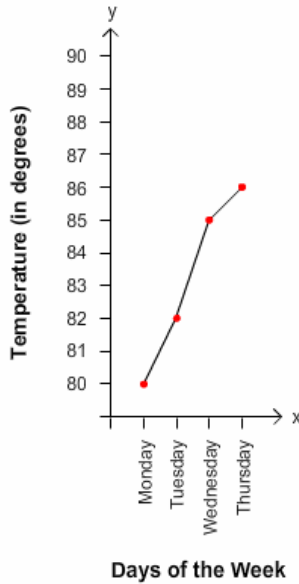
12) What is the next number in the pattern?

13, 16, 19, 22, \_\_\_\_\_

- a) 24
- b) 25
- c) 26
- d) 27

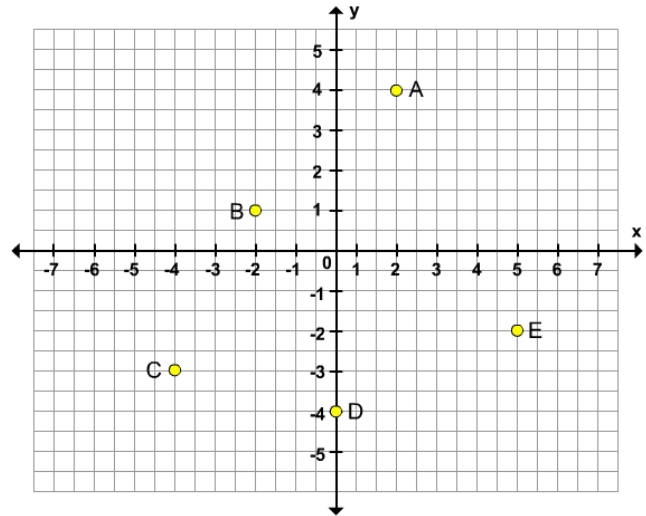
<p>13) What is the square root of 36?</p> <p>a) 2 b) 4 <b>c) 6</b> d) 8</p>	<p>14) For which equation is (7, 5) a solution?</p> <p>a) <math>x - y = 3</math> b) <math>x + y = 8</math> <b>c) <math>2x - y = 9</math></b> d) <math>x + y = 11</math></p>
<p>15) The number .00000641 is written in standard form. How would it be written in scientific notation?</p> <p>a) <math>.641 \times 10^{-6}</math> b) <math>.641 \times 10^5</math> c) <math>6.41 \times 10^6</math> <b>d) <math>6.41 \times 10^{-6}</math></b></p>	<p>16) To get to school you need to walk 9 block south on Main Street and then 12 blocks east on Penn Street. What is the diagonal distance from your starting point?</p> <p><b>a) 15</b> b) 24 c) 28 d) 135</p>
<p>17) There are 250 people at the mall and 148 have brown hair, approximately what percent of the people have brown hair?</p> <p>a) 20% <b>b) 60%</b> c) 70% d) 100%</p>	<p>18) Solve the following equation</p> $R + 9 = 15$ <p><b>a) 6</b> b) 24 c) 33 d) 45</p>
<p>19) Frank bought a pair of sneakers on sale for 50% off the original price; the store had an additional discount of 25% off all items. If the sneakers originally cost \$80.00, what was the final sale price that Frank paid?</p> <p>a) \$25.00 <b>b) \$30.00</b> c) \$35.00 d) \$45.00</p>	<p>20) How many centimeters are equal to 1 foot?</p> <p>a) 17.32 centimeters b) 25.40 centimeters <b>c) 30.48 centimeters</b> d) 40.52 centimeters</p>

21) The graph below shows the average temperature for the last four days. Given this data, what is a reasonable estimate for Friday's temperature?



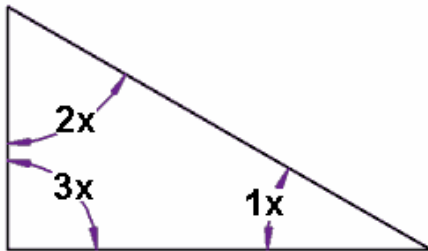
- a) between 80 and 84 degrees
- b) between 83 and 85 degrees
- c) between 87 and 89 degrees**
- d) between 89 and 91 degrees

22) Name the coordinate of point E on the graph below



- a) (5, -2)**
- b) (5, 2)
- c) (-5, 2)
- d) (-5, -2)

23) Find the measure in degrees, of the smallest angle in this triangle?



- a)  $20^\circ$
- b)  $30^\circ$**
- c)  $40^\circ$
- d)  $50^\circ$

24) The stem-and-leaf plot below reflects the grades received on a recent math test. Two students received the same grade, what was that grade?

Stem	Leaf
4	1, 2
5	4, 7, 9
6	3, 8
7	7, 7, 9
8	5, 7
9	1, 4, 9

- a) 42
- b) 54
- c) 68
- d) 77**

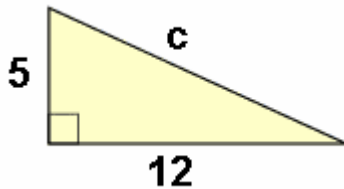
25) To change a distance from meters to millimeters, you will need to

- a) divide by 100
- b) divide by 1,000
- c) multiply by 100
- d) multiply by 1,000

26) What is the cube root of 27?

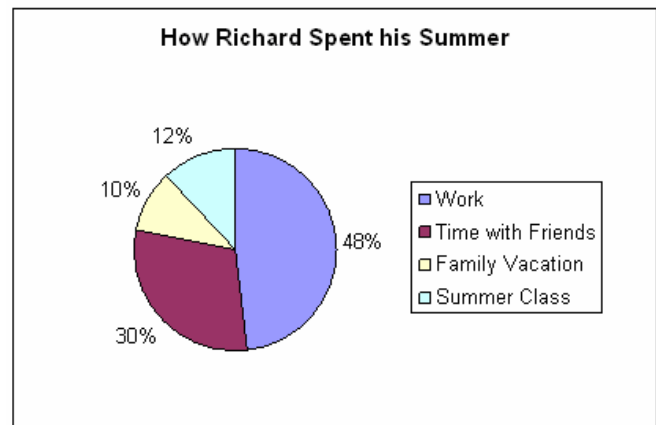
- a) 2
- b) 3
- c) 4
- d) 5

27) Find the missing value in the example below



- a) 10
- b) 13
- c) 17
- d) 19

28) Which activity took up almost one-half of Richard's summer?



- a) summer class
- b) family vacation
- c) work
- d) time with friends

29) In a triangle, one of the angles measures  $70^\circ$ . If the measure of a second angle is  $80^\circ$ , what is the measure of the remaining angle?

- a)  $30^\circ$
- b)  $35^\circ$
- c)  $40^\circ$
- d)  $45^\circ$

30) A rectangular prism has a length of 4, a height of 6, and a width of 3. What is the surface area of the prism?

- a) 54
- b) 72
- c) 108
- d) 120

<p>31) If <math>3x - 4 = 8</math>, what is the value of <math>x</math>?</p> <p>a) 3  <b>b) 4</b>  c) 5  d) 6</p>	<p>32) The Statue of Liberty is 305 feet tall. How many inches is that?</p> <p>a) 2540 inches  <b>b) 3660 inches</b>  c) 4250 inches  d) 5130 inches</p>
<p>33) A family's monthly income is \$3800 a month. One parent makes \$1500 per month and you want to find what the other parent's income. Write an equation to solve this problem.</p> <p><b>a) <math>x + 1500 = 3800</math></b>  b) <math>x \div 3800 = 1500</math>  c) <math>500x = 3800</math>  d) <math>1500 - x = 3800</math></p>	<p>34) Simplify <math>(4 \times 10^5)(3 \times 10^2)</math> and write in scientific notation</p> <p>a) <math>7 \times 10^7</math>  <b>b) <math>12 \times 10^7</math></b>  c) <math>7 \times 10^{10}</math>  d) <math>12 \times 10^{10}</math></p>
<p>35) Solve the following equation</p> $k + 2\frac{1}{9} = 1\frac{1}{3}$ <p>a) <math>\frac{2}{3}</math>  b) <math>\frac{5}{8}</math>  <b>c) <math>-\frac{7}{9}</math></b>  d) <math>-\frac{8}{11}</math></p>	<p>36) If you flip the same coin five times, what is the probability that it will result in the following combination: heads, heads, tails, tails, tails?</p> <p>a) <math>\frac{1}{2}</math>  b) <math>\frac{1}{8}</math>  c) <math>\frac{1}{16}</math>  <b>d) <math>\frac{1}{32}</math></b></p>
<p>37) Each morning Dillon walks to the bus stop before school. It takes him 120 seconds to get there. Over the course of the school year (180 days), how many hours does Dillon spend walking to the bus stop in the morning?</p> <p>a) 3 hours  <b>b) 6 hours</b>  c) 13 hours  d) 36 hours</p>	<p>38) What is the perimeter of a pentagon in which each side measures 4 inches?</p> <p>a) 12  b) 16  <b>c) 20</b>  d) 24</p>

39) What is the value of the expression  $3[10 - (5 + 2)]$

- a) 6
- b) 9**
- c) 21
- d) 27

40) George bought 14.2 gallons of gasoline priced at  $x$  dollars per gallon, 2 quarts of oil priced at  $y$  dollars per quart, and a wiper blade at \$3.79. Which expression represents the total cost of these items?

- a)  $14.2x + 2y + 3.79$**
- b)  $14.2x + 2y - 3.79$
- c)  $14.2y + 2x + 3.79$
- d)  $14.2y + 2x + 3.79$

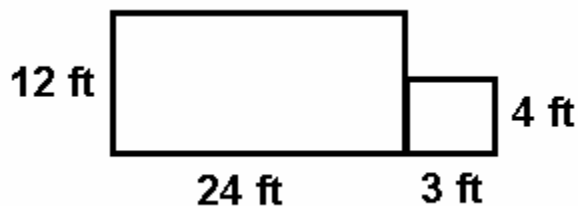
41) The sum of the interior angles of a polygon is  $540^\circ$ , how many sides does it have?

- a) 3
- b) 4
- c) 5**
- d) 6

42) Brian went to the grocery store to buy apples and oranges. He brought \$35 with him. He bought 10 oranges for \$15. If apple cost \$2 each, how many apples can Brian buy?

- a) 8
- b) 9
- c) 10**
- d) 11

43) If a gallon of paint will cover 300 square feet. How many gallons of paint will be needed to paint the wall shown below?

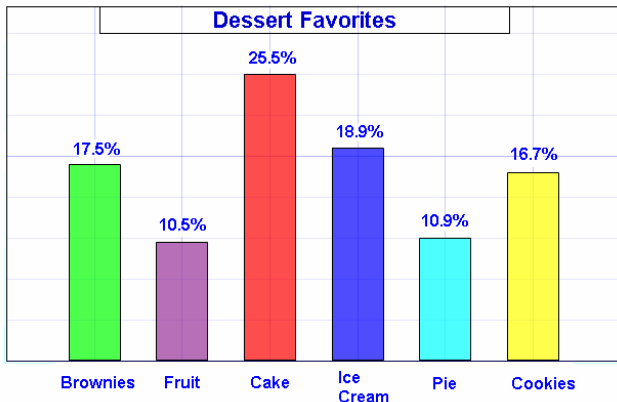


- a) 1 gallon**
- b) 2 gallons
- c) 3 gallons
- d) 4 gallons

44) You will be traveling from your home in Los Angeles, California to New York City, New York. You will be flying by plane. The pilot tells you the air miles between the two cities is 2375 miles and you will be traveling 500 miles per hour. Approximately how long will it take to get to New York City?

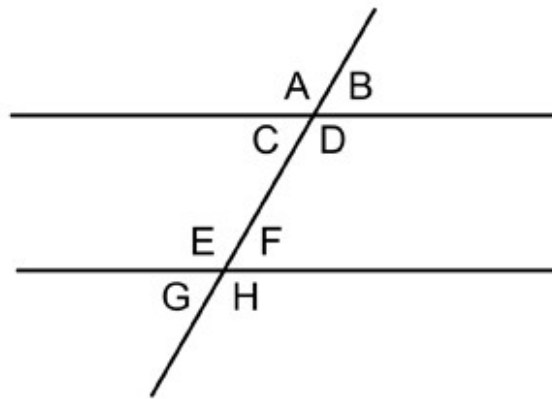
- a) 3 hour 30 minutes
- b) 4 hours 45 minutes**
- c) 4 hour 75 minutes
- d) 5 hours

45) There 275 students enrolled in 8<sup>th</sup> grade at Roosevelt Middle School. They were each asked what they would like to have for dessert today. According to the graph below, how many students wanted ice cream for dessert?



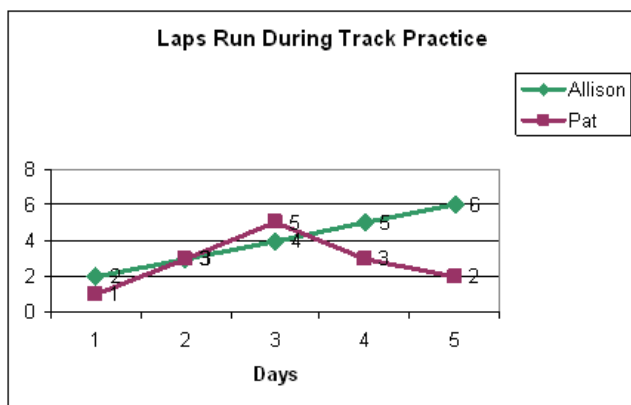
- a) 30
- b) 46
- c) 52**
- d) 70

46) Which statement is false?



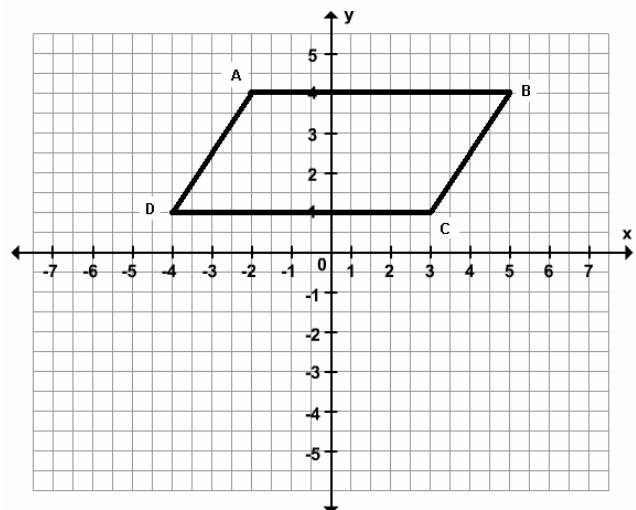
- a)  $\angle D$  and  $\angle E$  are alternate interior angles
- b)  $\angle F$  and  $\angle G$  are vertical angles
- c)  $\angle D$  and  $\angle H$  are corresponding angles
- d)  $\angle A$  and  $\angle D$  are alternate exterior angles**

47) On what day did Allison and Pat run the same number of laps?



- a) 1
- b) 2**
- c) 3
- d) 4

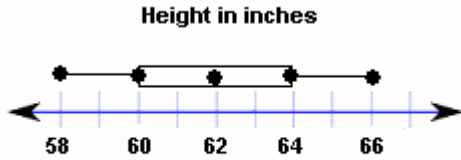
48) What are the coordinates of vertices A and C?



- a) A (-2, 4) and C (3, 1)**
- b) A (2, -4) and C (-3, 1)
- c) A (2, 4) and C (3, -1)
- d) A (-2, -4) and C (3, 1)

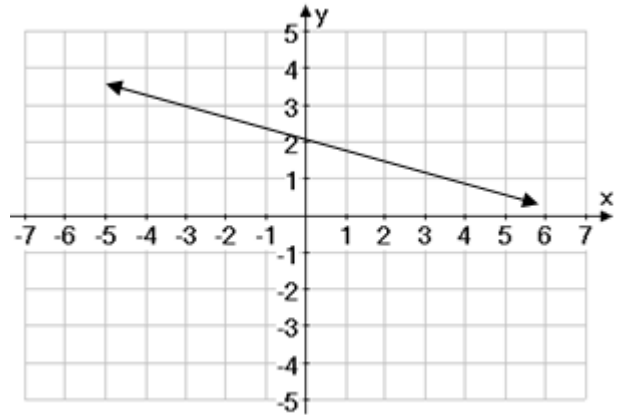


49) Using the box-and-whisker plot determine the greatest height?



- a) 60 inches
- b) 62 inches
- c) 64 inches
- d) 66 inches

50) Which equation represents the graph below



- a)  $y = 3x + 2$
- b)  $y = -1/3x + 2$
- c)  $y = 3x - 2$
- d)  $y = 2x - 1$

51) The data in the table below represents a linear function. Write the function rule?

<b>x</b>	0	1	2	3	4
<b>y</b>	2	5	8	11	14

- a)  $f(x) = 3x + 2$
- b)  $f(x) = 3x + 1$
- c)  $f(x) = 2x + 3$
- d)  $f(x) = 2x + 1$

52) Given the function  $y = 3x - 1$ , which set of numbers completes the table?

<b>x</b>	<b>y</b>
-1	
0	
1	

- a)  $\{-4, -1, 2\}$
- b)  $\{2, 1, -4\}$
- c)  $\{4, 1, -2\}$
- d)  $\{-2, -1, 4\}$

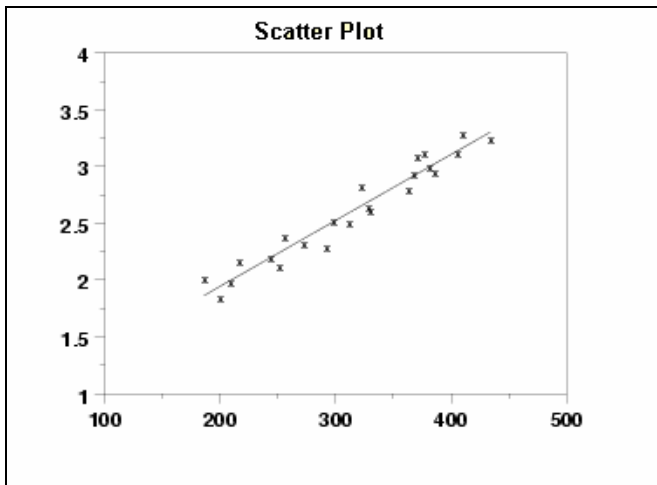
53) Solve for x  
 $3x - 7 = 14$

- a)  $-\frac{7}{3}$
- b)  $\frac{7}{3}$
- c) -7
- d) 7

54) What is 6050.287 rounded to the nearest tenth?

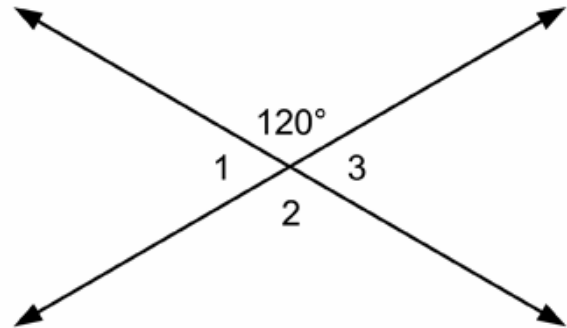
- a) 6050
- b) 6100
- c) 6050.29
- d) 6050.3

55) On the scatter plot below the variables can be described as having



- a) no relationship
- b) a positive correlation**
- c) a negative correlation
- d) a quadratic relationship

56) What is the measurement of angle 2 + angle 3?



- a)  $60^\circ$
- b)  $90^\circ$
- c)  $120^\circ$
- d)  $180^\circ$**

57) Triangles are classified according to their angle measurements. What is the sum of the angles of a triangle?

- a)  $100^\circ$
- b)  $180^\circ$**
- c)  $250^\circ$
- d)  $360^\circ$

58) Erica has \$100 to spend at the mall. She bought one pair of jeans for \$30 and would like to buy some shirts that are \$10 each. How many shirts can Erica buy?

- a) 5
- b) 6
- c) 7**
- d) 8

59) Jeremy has the choice of soda or lemonade and one snack to go with his drink: candy, popcorn, or a pickle. How many choices does Jeremy have?

- a) 4
- b) 5
- c) 6**
- d) 7

60) What are the total possible outcomes of tossing a coin 4 times?

- a) 8
- b) 12
- c) 14
- d) 16**

61) For which of the following shapes can the circumference be determined by measuring the distance around the edge?

- a) Circle
- b) Square
- c) Triangle
- d) Pentagon

62) The cable company estimates that a cable line repair job will take a total of 22 person-hours. If 3 workers are assigned to the job, approximately how long will it take them to complete the job according to this estimate?

- a) 6 hours
- b) 8 hours
- c) 10 hours
- d) 12 hours