

Penny Sikes 5th and 6th Grade Mathematics Tournament

Sponsored by Farmers and Merchants Bank

2018 6th Grade Individual Test

- 1) Make sure your name, the full name of your school, and your grade are correct on the answer sheet.
- 2) NO CALCULATORS!
- 3) DO NOT OPEN THIS TEST BOOKLET UNTIL INSTRUCTED TO DO SO BY THE TEST MONITOR.
- 4) If you must leave to go to the restroom, raise your hand and a monitor will escort you to the nearest restroom. Remember you have a time limit.
- 5) Read each problem carefully and mark each answer on your answer sheet.
- 6) Each correct answer on the test will be counted as one point on your individual score.
- 7) If individuals have the same written test score, ties will be broken by determining which student gave correct answers to the most difficult item(s) on the test.
- 8) When the individual testing is over, please make sure you take your pencil, test, and scratch work with you. You will need the pencil for the ciphering rounds.

1. A cooking instructor estimates that he uses 6 dozen eggs each month. At that rate about how many eggs does he use in one year?

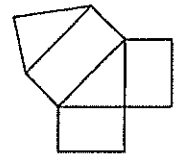
- A. 750 B. 850 C. 1,250 D. 2,550

2. In which order should the operations $+$, $-$, and \div be inserted into the blanks of $78 _ 24 _ 2 _ 6 = 72$ to make the statement true?

- A. $+$, $-$, \div B. $-$, $+$, \div C. $-$, \div , $+$ D. \div , $-$, $+$

3. What is the name of the 3-dimensional figure that can be formed by this net?

- A. A triangular prism B. A cube
C. A triangular pyramid D. A square pyramid



4. A survey of 20 students found that 17 of them were right-handed. Assuming this ratio for the student body of 2480, how many students are right-handed?

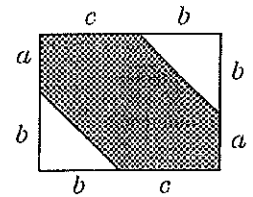
- A. 1624 B. 1750 C. 2012 D. 2108

5. Debra has grades of 77, 95 and 81, but she also has a project to turn in. All 4 grades count equally. Which inequality could be used to determine the lowest grade x she can make on the project to have an average of at least 82?

- A. $\frac{(77 + 95 + 81 - x)}{4} \neq 82$ B. $\frac{(77 + 95 + 81)}{3} + x \geq 82$
C. $77 + 95 + 81 + x \geq 4(82)$ D. $77 + 95 + 81 + x > 82$

6. In the diagram, $a = 3$, $b = 10$, and $c = 8$. Find the area of the shaded region.

- A. 134 B. 156 C. 168 D. 240



7. Professor Holland had 7 more students this year than he had last year. If he had a total of 43 students in both years combined, how many students did he have this year?

- A. 18 B. 25 C. 32 D. 36

8. Ms. Fedorov manages a factory that makes bathroom products. In an 8-hour workday, the factory produces 13,600 bars of soap.

If the rate of soap production is constant throughout the day, which table shows the correct relationship?

A. Soap

Hours	Number of Bars
1	3,400
2	6,700
5	10,200
8	13,600

B. Soap

Hours	Number of Bars
2	3,400
4	6,800
6	10,200
8	13,600

C. Soap

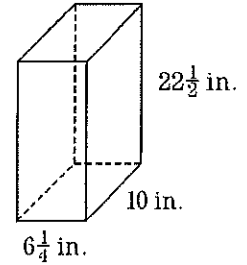
Hours	Number of Bars
2	5,100
6	11,200
7	12,800
8	13,600

D. Soap

Hours	Number of Bars
2	3,400
4	8,500
6	11,900
8	13,600

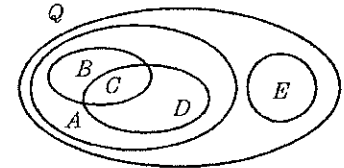
9. Calculate the volume of the rectangular solid shown.

- A. $1064\frac{1}{2} \text{ in}^3$ B. $1262\frac{1}{2} \text{ in}^3$
 C. $1406\frac{1}{4} \text{ in}^3$ D. $1462\frac{1}{2} \text{ in}^3$

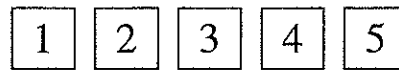


10. In the figure, Q is the set of all quadrilaterals, and A – E are the sets of all parallelograms, rectangles, rhombuses, squares, and trapezoids, not necessarily in that order. Set C must represent the set of all _____.

- A. rectangles B. rhombuses
 C. squares D. trapezoids



11. In a game you are given these 5 cards:



A rule says you must select 2 cards and form a 2-digit number such as:

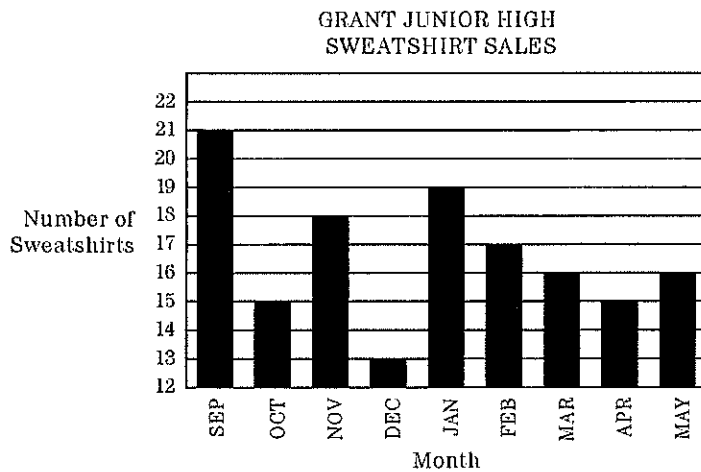


How many different 2-digit numbers can you form including the one shown?

- A. 10 B. 20 C. 25
 D. I don't know.
12. If $2n = 6$, then what is the value of $\frac{2n + 9}{3}$?
- A. 6 B. 5 C. 4 D. 3

13. Which of the following makes a true statement?
- A. $-9.2 > -2.9$ B. $-0.9 > -2.0$ C. $9.0 < -2.9$ D. $29 < 0.9$
14. Of the following, which doesn't reduce to $\frac{3}{5}$?
- A. $\frac{9}{15}$ B. $\frac{21}{35}$ C. $\frac{24}{40}$ D. $\frac{33}{50}$
15. Terry has 3 gallons of lemonade at his lemonade stand. How many 12-ounce cups can he sell? (1 gallon = 128 ounces)
- A. 4 cups B. 10 cups C. 32 cups D. 36 cups
16. At the circus, the ratio of men to women to children was 20:26:52. In lowest terms, what was the ratio of children to women?
- A. 2:1 B. 13:2 C. 1:2 D. 13:4
17. What is the length of one side of an equilateral triangle that has a perimeter of $15\frac{3}{4}$ feet?
- A. $3\frac{1}{3}$ feet B. $5\frac{1}{4}$ feet C. $7\frac{1}{2}$ feet D. $47\frac{1}{4}$ feet
18. Simplify: $[(4y + 2y) - (7 - y)] + 8$
- A. $y + 1$ B. $5y + 1$ C. $7y + 1$ D. $7y + 15$

19. Grant Junior High sells sweatshirts with a picture of the school mascot printed on the front. The graph shows the number of sweatshirts sold during the school year.



How many more sweatshirts were sold in the first three months of the school year than in the last three months?

- A. 5 B. 7 C. 12 D. 18
20. Look at the list.

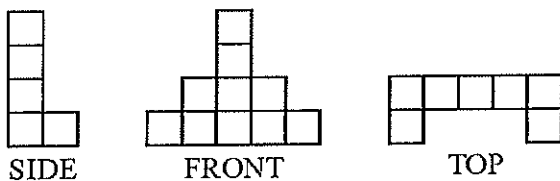
- I. $-(-9)$
- II. $|-9|$
- III. (-9)
- IV. 9

Which of these has the opposite value of $-(-9)$?

- A. I only B. III only
- C. III and IV only D. I and II only

21. Which problem is solved with the equation $\frac{H}{5} = 2$?
- A. If you work 5 times a month, how much will you work in a year?
 - B. If you work for 2 hours, how much is $\frac{1}{5}$ of your day?
 - C. If one-fifth of your work day is 2 hours, how long is your workday?
 - D. If you work for 2 hours a day, how long will you work in a year?

22. The side, front, and top views of an object built from cubes are shown. How many cubes are needed to construct this object?



- A. 20
 - B. 16
 - C. 12
 - D. 9
23. The Tully family wants to drive 515 miles to a national park. The gas tank of their car holds 20 gallons and they can drive on average 26 miles per gallon.
- Can the family drive to the national park using just one tank of gas?
- A. no, they will need 25 tanks of gas because $515 \div 20 = 25$
 - B. yes, because $20 \times 26 = 520$ so they can drive at most 520 miles on one tank
 - C. no, they will need 19.8 tanks of gas because $515 \div 26 = 19.8$
 - D. yes, because $\frac{20}{26} = 0.77$ so they need 0.77 tank of gas

24. Tiffany has \$12 to buy bananas for the ice cream social. Each pound of bananas costs \$0.35. Which table best describes the amount of money m Tiffany has left after buying b bananas?

A.

b	m
0	\$12.00
1	\$11.65
2	\$11.40
4	\$10.70

B.

b	m
1	\$11.65
2	\$11.30
4	\$10.95
5	\$10.60

C.

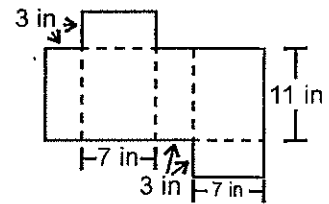
b	m
0	\$12.00
2	\$11.30
3	\$10.95
5	\$10.25

D.

b	m
1	\$12.00
2	\$11.30
3	\$10.95
5	\$10.25

25. Find the surface area of the box?

- A. 131 in^2 B. 154 in^2 C. 262 in^2 D. 283 in^2



26. There are twice as many boys at a game as there are girls. If there are 60 boys and girls at the game, how many are girls?

- A. 15 B. 20 C. 30 D. 45

27. Simplify: $2^3 (5^2 + 3)^2$

- A. 792 B. 5,072 C. 6,272 D. 50,176

28. These five rational numbers are plotted on a horizontal number line.

$$-\frac{2}{3}, \frac{7}{8}, -\frac{4}{5}, \frac{7}{10}, -\frac{4}{3}$$

Which statement about the locations of the rational numbers on the number line is true?

- A. $-\frac{2}{3}$ is farthest to the left, and $\frac{7}{8}$ is farthest to the right.
- B. $-\frac{4}{3}$ is farthest to the left, and $\frac{7}{8}$ is farthest to the right.
- C. $-\frac{2}{3}$ is farthest to the left, and $\frac{7}{10}$ is farthest to the right.
- D. $-\frac{4}{3}$ is farthest to the left, and $\frac{7}{10}$ is farthest to the right.
29. Sheli and Kien were washing cars for their neighbors. They decided to put their earnings together and then share it equally. Sheli earned \$15.40 and Kien earned \$17.90. How much money did each person get?
- A. \$16.50 B. \$16.65 C. \$32.50 D. \$33.30
30. Laura cut three strips of ribbon, each 1 inch shorter than the previous piece. If the shortest piece measures x inches, write an expression that represents the length of the longest strip.
- A. $x + 1$ B. $x - 1$ C. $x + 2$ D. $x - 2$
31. Jimmy Dean packs 6 sausages at a time in a carton. Next, he packs 10 cartons into a box. If Jimmy Dean has 180 sausages, then how many boxes will he fill?
- A. 2 boxes B. 3 boxes C. 6 boxes D. 8 boxes
32. Which coordinate is closest to the y -axis?
- A. $(-4, -6)$ B. $(-2, 5)$ C. $(3, -2)$ D. $(5, 8)$

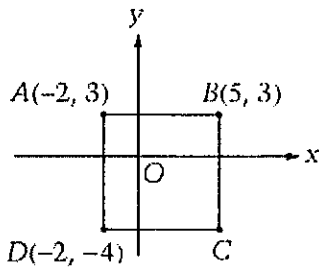
33.

$$\begin{aligned}1 + 3 &= 4 \\1 + 3 + 5 &= 9 \\1 + 3 + 5 + 7 &= 16 \\1 + 3 + 5 + 7 + 9 &= 25\end{aligned}$$

According to the pattern suggested by the four examples above, how many consecutive odd integers are required to give a sum of 144 ?

- A. 9 B. 11 C. 12 D. 13

34.



In the figure above, if $ABCD$ is a square, then the coordinates of vertex C are

- A. $(4, 5)$ B. $(3, -4)$ C. $(5, -4)$ D. $(5, -2)$

35. An unknown number of 7's are added up. The sum is divisible by 2 _____.

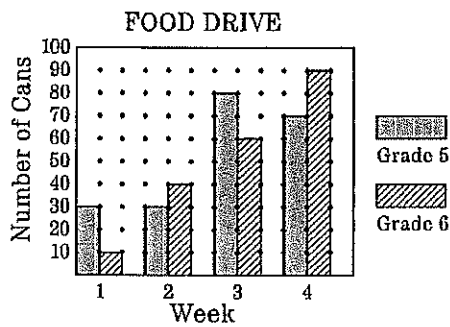
- A. Never
B. Only if an even number of 7's are added
C. Only if an odd number of 7's are added
D. Always

36. Each of the 39 students on the football team has one dog or one cat or both a dog and a cat. Twenty students have a dog and 26 students have a cat. How many students have both a dog and a cat?

- A. 7 B. 13 C. 19 D. 26

37. Jalene works on an aircraft assembly line, where she attaches skin panels with up to four different sized diameter rivets. Which list has the rivets listed in order from largest to smallest diameter?
- A. $18\frac{3}{4}$ mm, $18\frac{7}{8}$ mm, $19\frac{2}{3}$ mm, $19\frac{3}{7}$ mm
B. $19\frac{2}{3}$ mm, $19\frac{3}{7}$ mm, $18\frac{3}{4}$ mm, $18\frac{7}{8}$ mm
C. $18\frac{7}{8}$ mm, $18\frac{3}{4}$ mm, $19\frac{3}{7}$ mm, $19\frac{2}{3}$ mm
D. $19\frac{2}{3}$ mm, $19\frac{3}{7}$ mm, $18\frac{7}{8}$ mm, $18\frac{3}{4}$ mm
38. Tasha began shopping with \$15. After spending some money, the amount she had left was equal to two-thirds of what she had spent. How much had she spent?
- A. \$5 B. \$6 C. \$9 D. \$10
39. Janie can name the capital of 62% of the 50 states of the U.S. How many state capitals can she NOT name?
- A. 19 B. 31 C. 34 D. 37
40. Most meats lose weight through cooking. A roast which weighed 8 pounds 6 ounces before cooking weighed only 7 pounds 7 ounces after cooking. How much weight did the roast lose?
- A. 12 oz B. 14 oz C. 15 oz D. 1 lb 1 oz

41. The fifth-grade and sixth-grade classes at Riverside Elementary ran a canned food drive during the four weeks before Thanksgiving. The results are shown in the graph.



How many more cans were collected by the fifth-grade than by the sixth-grade?

- A. 10 B. 30 C. 40 D. 50

42. The following table gives the number of days that the students of Mr. Fletcher's class are absent in the year.

Days Absent	Number of Students
3	1
5	2
6	2
7	3
8	2
12	1

Which of the following is the correct boxplot for this data?

- A.
- B.
- C.
- D.

43. On March 2 it was 42°F at 7 AM. From 7 AM to 4 PM, the temperature rose an average of 4°F per hour. From 4 PM on March 2 to 8 AM on March 3, the temperature dropped an average of 3°F per hour. What was the temperature at 8 AM on March 3?

- A. 24°F B. 30°F C. 36°F D. 38°F

44. When the students in Mrs. Bird's room are put in teams of 2 or 5 or 6, there is always 1 student left over. How many students are in Mrs. Bird's room if there are fewer than 50?

- A. 11 B. 29 C. 30 D. 31

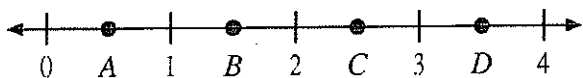
45. Emily spent $\frac{1}{4}$ hour fixing the broken chain on her bike and $\frac{1}{6}$ hour filling her bike tires with air. How much time in all did Emily work on her bike?

- A. $\frac{2}{10}$ hour B. $\frac{5}{24}$ hour C. $\frac{3}{12}$ hour D. $\frac{5}{12}$ hour

46. Jan's father paid 10¢ for each math exercise she worked correctly. Jan agreed to pay her father 15¢ for each exercise worked incorrectly. After completing 12 exercises and grading them her father said, "You owe me 5¢!" How many exercises had Jan worked correctly?

- A. 1 B. 6 C. 7 D. 9

47. Which point shows the location of $\frac{3}{2}$ on the number line?



- A. point A B. point B C. point C D. point D

48. The box given shows Tang's scores on five history papers.

100, 88, 83, 79, 95

What is the relationship between Tang's mean and median scores?

- A. The mean is one point lower than the median.
B. The mean is one point higher than the median.
C. The mean is six points lower than the median.
D. The mean is six points higher than the median.
49. The least common multiple of 10 and 24 plus the greatest common factor of 10 and 24 equals ____.
- A. 121 B. 122 C. 241 D. 242
50. The price of a share of stock for company XYZ at the beginning of the week was \$24.75. Over the next five days, the stock gained \$2.50 on Monday, lost \$3.25 on Tuesday, lost \$0.75 on Wednesday, gained \$1.25 on Thursday, and gained \$4.75 on Friday. What was the price of the share of stock at the end of Friday?
- A. \$12.25 B. \$25.75 C. \$29.25 D. \$37.25

2018 6th Grade Individual Test

Answer Key

1. B	26. B
2. C	27. C
3. A	28. B
4. D	29. B
5. C	30. C
6. A	31. B
7. B	32. B
8. B	33. C
9. C	34. C
10. C	35. B
11. B	36. A
12. B	37. D
13. B	38. C
14. D	39. A
15. C	40. C
16. A	41. A
17. B	42. B
18. C	43. B
19. B	44. D
20. B	45. D
21. C	46. C
22. C	47. B
23. B	48. B
24. C	49. B
25. C	50. C

