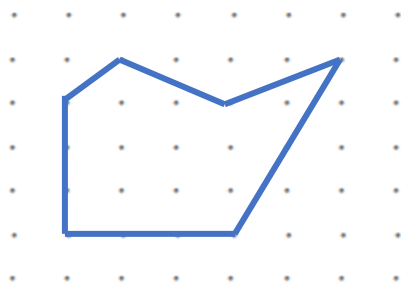


2022 Grade 6 Mathematics Contest

- Two friends ordered a large pizza that was cut into equal-sized pieces. Josiah ate one-half of the pizza, and Janeesa ate one-fourth of the pizza. If there were four pieces left, into how many pieces was the pizza cut to begin with?
 - 12
 - 16
 - 20
 - 24
 - 28

- In the diagram below, the horizontal and vertical distance between two dots is one centimeter. Find the area of the region inside the polygon shown in the diagram.



- 9 sq. cm
 - 13.5 sq. cm
 - 14.5 sq. cm
 - 15 sq. cm
 - 20 sq. cm
-
- Without looking, you take one block from a box containing 4 green blocks, 7 red blocks and 5 blue blocks. The blocks are identical except for color. What is the probability that the block is not blue?
 - $\frac{1}{4}$
 - $\frac{5}{16}$
 - $\frac{7}{16}$
 - $\frac{11}{16}$
 - 1

4. If this pattern continues, what would be the 317th letter in the pattern?

GRADEGRADEGRADEGRADE . . .

- a. G
 - b. R
 - c. A
 - d. D
 - e. E
5. At a local game store, Michael found a video game that was originally priced at \$48. The store was having a 25% off sale, and Michael also had a coupon which would reduce the sale price by another 10%. How much money will Michael need to pay for the game (not including sales tax)?
- a. \$12.00
 - b. \$13.00
 - c. \$22.00
 - d. \$31.20
 - e. \$32.40
6. At 3:00 AM the temperature was -12° F. At 4:00 PM that same day, the temperature was 23° F. How much warmer was it at 4:00 PM than at 3:00 AM?
- a. -11°
 - b. 11°
 - c. -35°
 - d. 35°
 - e. 47°
7. The greatest common factor of two different numbers is 48. Which statement is true about the two numbers?
- a. Both numbers must be greater than 48.
 - b. Both of the numbers are less than 48.
 - c. Neither number can be a multiple of five.
 - d. Both numbers must be odd.
 - e. Both numbers must be even.

8. If $x + y = 8$ and $x + z = 12$, which of the following statements must be true?
- a. $x + z = x + y + 4$
 - b. $y > z$
 - c. $x < y < z$
 - d. $x + y + z = 20$
 - e. $x + y = x + z + 4$
9. Abe's parents agreed to pay him \$24 for raking the leaves on his lawn. Abe raked the leaves in three-fourths of the lawn. Then his sister Jamie agreed to help him rake the rest of the lawn. Abe and Jamie each did an equal share of the remaining work in raking the leaves in that part of the lawn. For Abe and Jamie to receive the same rate of pay, how much of the \$24 should Jamie be paid?
- a. \$2
 - b. \$3
 - c. \$4
 - d. \$6
 - e. \$8
10. In November 2021, a store sold 80 toys. The next month, the store sold 120% more toys than the previous month. How many toys did the store sell in December?
- a. 92 toys
 - b. 96 toys
 - c. 100 toys
 - d. 108 toys
 - e. 176 toys
11. A taxicab fare costs \$3.00 for a trip which is one mile or less. For trips over 1 mile, the fare is \$3 plus an additional charge of 15 cents for every tenth of a mile past the first mile. One passenger is charged \$5.55. How far did this passenger travel in the taxicab?
- a. 2.7 miles
 - b. 2.5 miles
 - c. 21.7 miles
 - d. 25 miles
 - e. 37 miles

12. Which of the following numbers is prime?

- a. 159
- b. 297
- c. 403
- d. 576
- e. 619

13. The base of a pyramid has six sides. Which statement is true?

- a. The pyramid has 18 edges, 8 faces, and 12 vertices.
- b. The pyramid has 12 edges, 7 faces, and 7 vertices.
- c. The pyramid has 12 edges, 6 faces, and 8 vertices.
- d. The pyramid has 12 edges, 12 faces, and 12 vertices.
- e. The pyramid has six edges, 6 faces, and 6 vertices.

14. $4^{125} \div 2^{125}$ equals

- a. 2
- b. 2^{75}
- c. 4^{25}
- d. 2^0
- e. 2^{125}

15. How many lines of symmetry does a non-square rectangle have?

- a. 0
- b. 1
- c. 2
- d. 3
- e. 4

16. How many positive whole number factors do 30 and 48 have in common?

- a. 0
- b. 1
- c. 3
- d. 4
- e. Infinitely many

17. If the area of the figure below represents $\frac{3}{2}$, which of the figures would represent $\frac{5}{4}$?



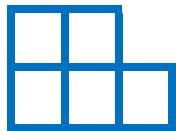
a.



b.



c.

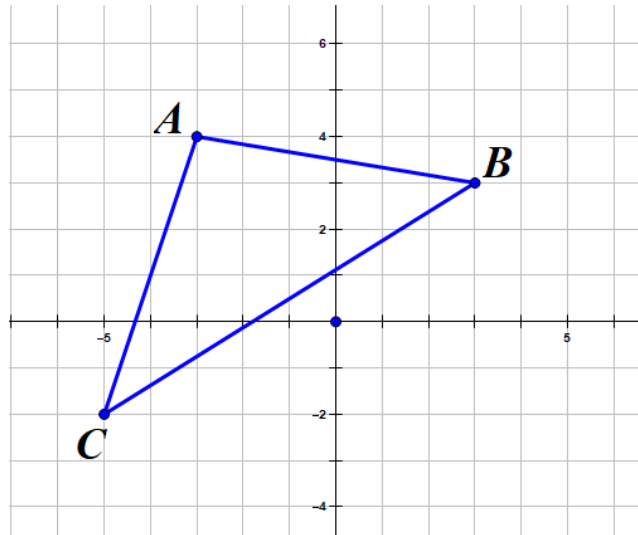


d.



e. None of these

18. Suppose triangle ABC is reflected across the X-axis to create a new triangle PQR, in which point P is the image of point A. What would be the coordinates of point P?



- a. (-3, 4)
b. (-3, -4)
c. (3, 4)
d. (3, -4)
e. (4, -3)
19. I measured the flour in the canister and found that I have 6 cups of flour. Each batch of sugar cookies requires $1\frac{1}{3}$ cups of flour. After I make as many full batches of cookies as possible, how much flour will be left in the canister?
- a. $\frac{1}{2}$ cup
b. $\frac{1}{3}$ cup
c. $\frac{2}{3}$ cup
d. $4\frac{1}{3}$ cups
e. $4\frac{2}{3}$ cups

20. A farmer has decided to increase the size of the rectangular pen he uses to enclose some of his smaller animals. He notices that he has enough space to double both the length and the width of the rectangle. What is true of the new pen's area?

- a. The new pen has 2 times the area of the original pen.
- b. The new pen is 100% larger than the original pen.
- c. The new pen is three times as large as the original pen.
- d. The new pen is 4 times as large as the original pen.
- e. The new pen is 150% larger than the original pen.

21. A teacher uses a stem and leaf plot to show the grades on the exam for her math class. Use this information to determine the median grade of the class.

TEST SCORES OUT OF 100 POINTS	
STEM	LEAF
10	00
9	22588
8	235678
7	66888
6	678

- a. 78
- b. 84.4
- c. 85
- d. 85.5
- e. 86

22. Which of the following inequalities is a true statement?

- a. $|-2| > -7$
- b. $-2 > |-7|$
- c. $|2| > |-7|$
- d. $-2 > 7$
- e. $|-2| > 7$

23. The difference between two natural numbers is 10, and their product is 551. What is the sum of the two numbers?

- a. 38
- b. 48
- c. 58
- d. 68
- e. 78

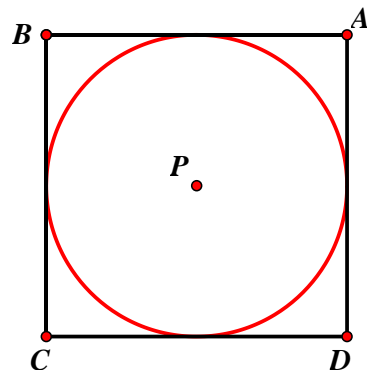
24. You are shopping for a new cell phone. You can choose from 7 different phones. Each phone comes in four colors. How many different choices are there?

- a. 11
- b. 14
- c. 28
- d. 35
- e. 36

25. How many perfect square numbers are there that are less than 500, not including 0?

- a. 16
- b. 20
- c. 21
- d. 22
- e. 24

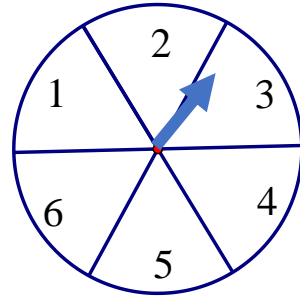
26. The area of the square below is 64 square meters. What is the circumference of the circle?



- a. 4π meters
- b. 8π meters
- c. 16π meters
- d. 32π meters
- e. 64π meters

27. One of two identical spinners is shown below. If the two spinners are spun, what is the probability that the product of the two numbers will be odd?

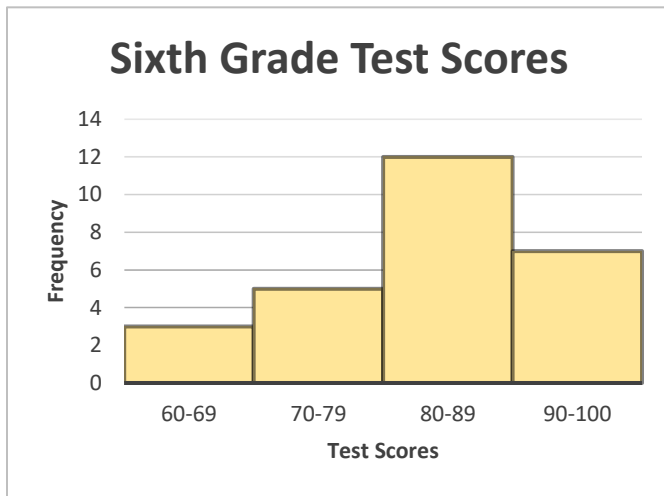
- a. $\frac{1}{2}$
- b. $\frac{1}{4}$
- c. $\frac{5}{18}$
- d. $\frac{2}{3}$
- e. $\frac{3}{4}$



28. The School colors of Madison Middle School are gold and purple. At a recent event attended by 60 students, all of the students were wearing hats, either purple or gold. The ratio of purple to gold hats was 8:7. How many of the hats were purple?

- a. 28
- b. 30
- c. 32
- d. 36
- e. 52

29. Consider the information that is displayed in the following graph.



According to the graph, which statement is true?

- a. There are 100 test scores in this group.
- b. There are 19 students who scored at least 80.
- c. There are four students who scored in the 60-69 score range.
- d. There are ten students with scores less than 80.
- e. There are 24 students in this group.

30. Figure ABCD is a square with a side length of 12 m, and M is the midpoint of side DC. What is the total area of the shaded regions?

- a. 144 square meters
- b. 108 square meters
- c. 72 square meters
- d. 36 square meters
- e. 96 square meters

