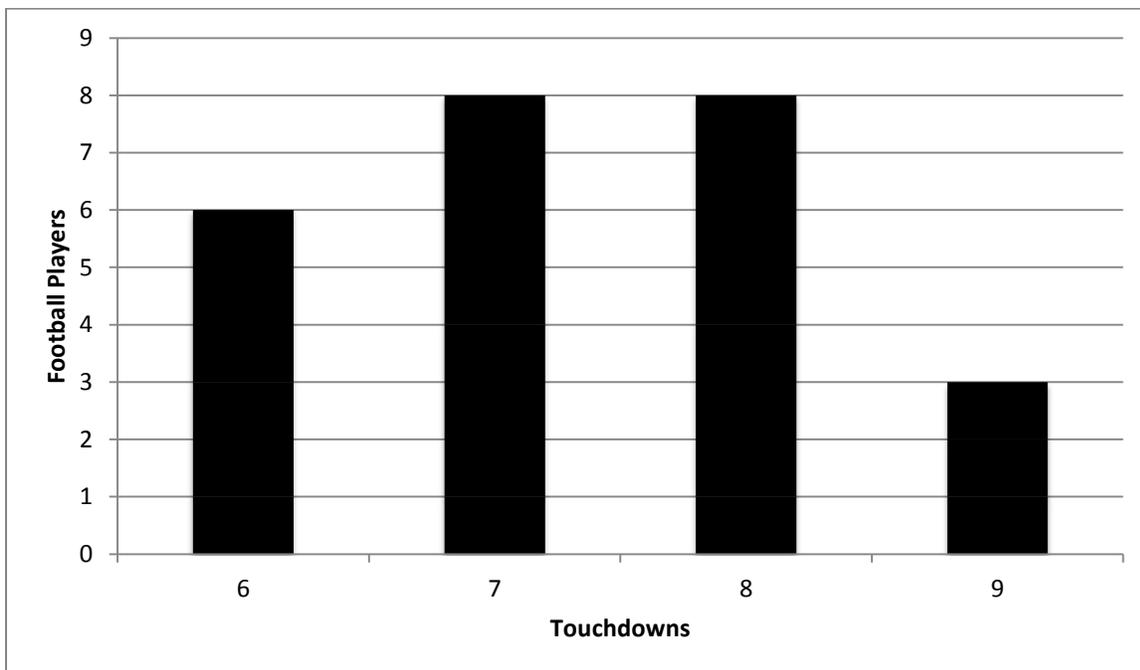


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1. Milo is making $1\frac{1}{2}$ batches of muffins. If one batch calls for $1\frac{3}{4}$ cups flour, how much flour will he need?

- A. $2\frac{5}{8}$ cups
- B. $\frac{13}{8}$ cups
- C. $\frac{7}{8}$ cups
- D. $3\frac{1}{2}$ cups
- E. 5 cups

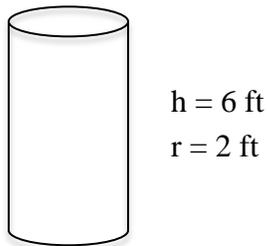
2. The following is the data for the number of touchdowns scored by NFL players during one season.



Which is true?

- A. The mean number of touchdowns scored and the median number of touchdowns scored are the same.
- B. The mean is larger than the median.
- C. The median is larger than the mean.
- D. The mode is 8.
- E. Two of the above four statements are true.

3. Find the surface area of the cylinder. Use 3.14 for π , and round to the nearest hundredth.



- A. 95.24 ft^2
 B. 93.77 ft^2
 C. 102.75 ft^2
 D. 100.48 ft^2
 E. 87.91 ft^2
4. Which of the following numbers is farthest from 0 on the number line.
- A. 2
 B. $-\frac{23}{7}$
 C. -4
 D. $\frac{12}{5}$
 E. 1.5
5. A Chevrolet Tahoe gets an estimated 17 MPG using gas that costs \$3.05 per gallon. Approximately what was the cost, in dollars, of the gasoline used in driving the car 200 miles? Round to the nearest dollar.
- A. \$10
 B. \$20
 C. \$25
 D. \$30
 E. \$36
6. A class of 32 students plans to buy the following items.

Quantity	Item	Unit Price
5	Pepperoni Pizza	\$5.99
6	2-Liter Drinks	\$0.99
1	Pack of Cups	\$1.79

If the class of 32 students splits the cost evenly, and assuming there is no tax, which equivalent can be used to find t (the amount each student should pay)?

- A. $t = 5(5.99) + 6(0.99) + 1.79$
 B. $t = (5 \times 5.99 + 6 \times 0.99 + 1.79) / 32$
 C. $t = (5 \times 0.99 + 6 \times 5.99 + 1.79) / 32$
 D. $t = (5 \times 5.99 + 6 \times 0.99 + 1.79) / 30$

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E. $t = 6 \times 5.99 + 5 \times 0.99 + 1.79 / 30$

7. Which of the following is most likely to have an area of 55,000 square millimeters?
- A. A postage stamp
 - B. A sheet of paper
 - C. The surface of a table
 - D. A football field
 - E. The state of Tennessee
8. Bob is making cakes. Each cake requires $1\frac{1}{3}$ cup of cake mix and 1 egg. If he has 7 eggs and 10 cups of cake mix, how many cups of cake mix will be left when he has made all the cakes he can?
- A. None
 - B. $\frac{1}{3}$ cup
 - C. $\frac{2}{3}$ cup
 - D. $1\frac{1}{3}$ cup
 - E. $9\frac{1}{3}$ cup
9. Suppose F denotes the temperature of an object measured in Fahrenheit and K denotes the same temperature measured in Kelvin. To compute F from K , subtract 273.15, multiply by 1.8, and then add 32. Which of the following is formula for F in terms of K ?
- A. $F = K - 273.15 * 1.8 + 32$
 - B. $F = K + 32 * 1.8 - 273.15$
 - C. $F = (K + 32) * 1.8 - 273.15$
 - D. $F = (K - 273.15) * 1.8 + 32$
 - E. There is not enough information to determine the answer.
10. Suppose Alice, Frank, and Marty are in a band which makes \$1,800,000 selling CDs. If Marty gets twice as much money as Alice, but only one third as much as Frank, how much money do Alice and Marty make together?
- A. \$100,000
 - B. \$200,000
 - C. \$400,000
 - D. \$600,000
 - E. \$1,200,000

11. Suppose two fair dice are rolled and the two values shown are added together. What's the probability that this sum is less than 5?

- A. $\frac{1}{6}$
- B. $\frac{1}{3}$
- C. $\frac{3}{11}$
- D. $\frac{4}{11}$
- E. $\frac{1}{9}$

12. Consider the following facts:

$$1 + 2 = 3$$

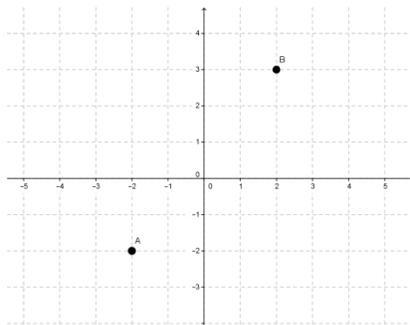
$$1 + 2 + 2^2 = 7$$

$$1 + 2 + 2^2 + 2^3 = 15$$

What is $1 + 2 + 2^2 + \dots + 2^{100}$?

- A. 0
- B. $2^{1+2+3+\dots+100}$
- C. 2^{101}
- D. $2^{100} - 1$
- E. $2^{101} - 2^0$

13. The following graph shows two points A and B. How many places could a third point C be placed so that A, B, and C form the vertices of an equilateral triangle?

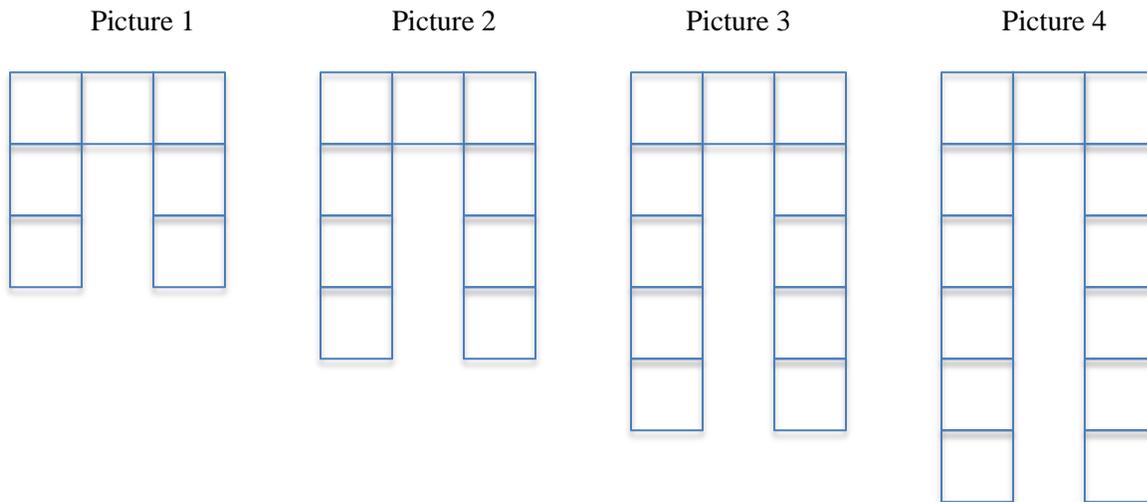


- A. None
- B. One
- C. Two
- D. Three
- E. Four

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14. Jason and Sara each have a bag of marbles. Sara's bag has 7 less than 3 times as many as Jason's bag. Which of the following expressions describes the number of marbles in Sara's bag, if x represents the number of marbles in Jason's bag?
- A. $7 - 3x$
 - B. $3x - 7$
 - C. $3(x - 7)$
 - D. $3(7 - x)$
 - E. $7(x - 3)$
15. Ava has 60 stuffed animals. She has 24 cats, and the rest are dogs. What is the ratio of dogs to cats?
- A. 60:24
 - B. 36:60
 - C. 2:3
 - D. 60:36
 - E. 3:2
16. Crystal is painting the wooden fence around her backyard. She can paint 8 boards in 30 minutes. How long will it take her to paint 100 boards?
- A. 6 hours and 30 minutes
 - B. 6 hours and 15 minutes
 - C. 6 hours
 - D. 6 hours and 25 minutes
 - E. 6 hours and 45 minutes
17. Which of the following points is the reflection of $(-3, 5)$ across the x-axis?
- A. $(3, -5)$
 - B. $(5, -3)$
 - C. $(-5, 3)$
 - D. $(-3, -5)$
 - E. $(3, 5)$
18. Siri is training for the Olympics. On one of her training runs she runs for 5 miles. For the first two miles she runs at a constant rate which allows her to go 2 miles in 13 minutes. Realizing she cannot keep up this pace for the entire run, she slows down. She runs the last 3 miles at a constant rate, taking 8 minutes to run each mile. What is her average speed for the 5 mile run (to the nearest hundredth of a mile/hr)
- A. 5.20 miles per hour
 - B. 7.25 miles per hour
 - C. 7.40 miles per hour
 - D. 8.11 miles per hour
 - E. 8.40 miles per hour

19. In the first picture below there are 7 tiles. How many tiles will there be in the 150th picture?



- A. 209 tiles
 B. 300 tiles
 C. 305 tiles
 D. 307 tiles
 E. 309 tiles
20. An express package delivery service offers several flat-rate boxes, each of which is shaped like a right rectangular prism. One of the boxes measures 10 inches by 12 inches by 8 inches, and the company will ship anything that will fit in the box anywhere in the world for \$28.80. How much does shipping this box cost per cubic inch?
- A. 3 cents
 B. \$30.72
 C. \$33.33
 D. 5 cents
 E. 30 cents
21. Tremayne has to take out the trash on Thursdays after he gets home from school and before supper. Tremayne gets out of school at 2:30 p.m. He gets home at 3:00 p.m. Tremayne's family eats supper every evening at 6:00 p.m. Tremayne goes to bed at 8:30 p.m. If t represents the time that Tremayne takes out the trash, then which of the following expressions corresponds best to Tremayne's chore requirement?
- A. $8:30 < t$ and $t > 3:00$
 B. $t < 3:00$
 C. $t < 8:30$
 D. $3:00 < t < 6:00$
 E. $3:00 < t < 8:30$

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22. Siobhain went to a store where shoes were on sale at 30% off the original price. If she paid \$36.40, excluding tax, for a pair of shoes, then what was the original price of the shoes?
- A. \$25.48
 - B. \$50.00
 - C. \$47.32
 - D. \$52.00
 - E. \$121.33
23. The highest point in California is the summit of Mount Whitney at an elevation of 4,421 meters above sea level. The lowest point in California is less than 90 miles away at Badwater Basin in Death Valley, where the elevation is 86 meters below sea level. What is the difference in elevation between the summit of Mount Whitney and Badwater Basin?
- A. 0 meters
 - B. 4,335 meters
 - C. $\frac{4335}{2}$ meters
 - D. $\frac{4507}{2}$ meters
 - E. 4,507 meters
24. Sixty percent of the students at Hogwarts Middle School are in the sixth grade, and there are twice as many 7th grade students as 8th grade students. There are 72 sixth graders at Hogwarts. How many 8th grade students are at Hogwarts?
- A. 16
 - B. 18
 - C. 20
 - D. 24
 - E. 32
25. If the pattern below continues, what will be the 1002nd letter?



- A. M
- B. A
- C. T
- D. H
- E. I

26. Turbo the tortoise goes one mile uphill at 2 MPH, two miles on the level ground at 3 MPH, then three miles downhill at 4 MPH. What is her average speed for the whole journey?

- A. 3 MPH
- B. 2.73 MPH
- C. 2.87 MPH
- D. 3.13 MPH
- E. 3.27 MPH

27. The mean of a set of five numbers is known to be 9.4. If four of the numbers in the set are 7, 11, 15, and 19, what is the missing number?

- A. -5
- B. 0
- C. 9.4
- D. 12
- E. 21

28. If the mean of twenty different positive integers is 20, what would be the greatest possible value of any one of these twenty numbers?

- A. 400
- B. 250
- C. 210
- D. 100
- E. 40

29. What number satisfies the following rhyme?

A multiple of 11 I be,
not odd but even you see,
my digits a pair,
when multiplied there,
make a cube and square out of me.

- A. 11
- B. 22
- C. 66
- D. 88
- E. 99

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30. Mr. Monk is a bit compulsive and he must have the gumballs in his gumball jar in the following ratios.

orange: green	5:1
blue: green	3:1
red: orange	6:1

If he must have at least one gumball of each color, what is the minimum number of gumballs he must have to have the gumballs in the ratios above? He will not tolerate part of a gumball!

- A. 90
- B. 45
- C. 39
- D. 30
- E. 23