

MEDIAN/MODE

5. What is the median of the first 5 positive even numbers?

(A) 4
 (B) 5
 (C) 6
 (D) 8
 (E) 30

$$X = \{2, 9, -5, 3, 8\}$$

$$Y = \{-4, 7, 0, 1, 10, 5\}$$

10. What is the sum of the median of set X and the median of set Y ?

(A) $-4\frac{1}{2}$
 (B) 0
 (C) 3
 (D) 6
 (E) 9

$$3x - 4, x + 1, 2x - 4, 2x + 2, x - 12$$

12. If $x = 0$, find the mode of the list of numbers above:

(A) -4
 (B) $-\frac{17}{5}$
 (C) 1
 (D) 2
 (E) 4

$$A = \{3, -2, 5, -\frac{1}{2}, x, -4, 7, -6\}$$

12. If the median of set A is $\frac{1}{2}$, then what is the value of x ?

(A) 4
 (B) $1\frac{1}{2}$
 (C) $\frac{1}{2}$
 (D) 0
 (E) $-\frac{1}{2}$

Questions 13–14 refer to the following sets of numbers.

$$A = \{-5, 2, 4, -1, -3, 8\}$$

$$B = \{0, -7, -2, 3, 6, -4\}$$

$$C = \{-21, 15, -8, -4, 3, 9\}$$

$$D = \left\{1, \frac{3}{5}, 5, \frac{1}{8}\right\}$$

$$E = \{-1, -6, 0, -4, 9, 11\}$$

13. Which of the above sets has the greatest median?
- (A) Set *A*
 (B) Set *B*
 (C) Set *C*
 (D) Set *D*
 (E) Set *E*

14. What is the mode of the five medians of the sets above?
- (A) $1\frac{1}{2}$
 (B) $\frac{4}{5}$
 (C) 0
 (D) $-\frac{1}{2}$
 (E) -1

$$S = \{5, 0, -7, -4, 3, -5\}$$

14. Which of the following sets has the same median as set *S*?
- (A) $\left\{-\frac{1}{2}, -2, 3, 6, -4\right\}$
 (B) $\left\{0, -2, 6, \frac{3}{2}, -8, -5\right\}$
 (C) $\{3, 6, 2, 9, 1\}$
 (D) $\{-4, 0, -1, 3, -2, 5\}$
 (E) $\{7, -5, 4, 1, -6, -9\}$

$$A = \{x + 3, x - 4, 3x + 4\}$$

20. If $x > 0$, what is the median of set *A*?
- (A) $2x - 4$
 (B) $x + 3$
 (C) $3x + 4$
 (D) $3x + \frac{3}{2}$
 (E) $x - 4$

PERCENTS

3. 10 is 20% of what?
- (A) 0.5
 - (B) 5
 - (C) 50
 - (D) 500
 - (E) 5000
4. 13 is 25% of what?
- (A) 0.552
 - (B) 5.2
 - (C) 52
 - (D) 520
 - (E) 5200
4. 40 is 1% of what?
- (A) 0.4
 - (B) 4
 - (C) 40
 - (D) 400
 - (E) 4000
6. On a test of 50 questions, Gertrude answered 47 correctly. If Gertrude answered every question, what percentage did she answer incorrectly?
- (A) 97%
 - (B) 94%
 - (C) 47%
 - (D) 6%
 - (E) 3%
7. 20% of what is 30?
- (A) 1500
 - (B) 150
 - (C) 15
 - (D) 1.5
 - (E) 0.15
7. 50% of what is 9?
- (A) 90
 - (B) 50
 - (C) 36
 - (D) 18
 - (E) 4.5
7. What is 1% of 45?
- (A) 45.45
 - (B) 4.5
 - (C) 0.45
 - (D) 0.045
 - (E) 0.0045
8. What is 85% of 50?
- (A) 180
 - (B) 175
 - (C) 150.75
 - (D) 42.5
 - (E) 40.4
9. 40% of 20% of 800 is what?
- (A) 46
 - (B) 64
 - (C) 80
 - (D) 640
 - (E) 860
9. 75% of 75% of 256 is what?
- (A) 192
 - (B) 150
 - (C) 144
 - (D) 108
 - (E) 48

9. 2 is $12\frac{1}{2}\%$ of what?
- (A) $\frac{1}{4}$
(B) $2\frac{1}{2}$
(C) 8
(D) 16
(E) 25
10. A student took a test with 60 questions. If she answered 14 questions incorrectly and left 4 questions blank, what percent of the questions did she answer correctly?
- (A) 18%
(B) 30%
(C) 42%
(D) 70%
(E) 82%
11. 50% of 25% of what is 96?
- (A) 12
(B) 76
(C) 120
(D) 768
(E) 1200
13. 15 percent of 500 is equal to 7.5 percent of
- (A) 10
(B) 75
(C) 100
(D) 150
(E) 1000
14. Two-thirds of 27 equals 25% of what number?
- (A) 9
(B) 18
(C) 27
(D) 72
(E) 81
15. $\frac{1}{2}\%$ of 1000% of 10 is what?
- (A) 0.5
(B) 1.5
(C) 15
(D) 50
(E) 500
18. A coat was originally priced at \$240. The retailer marked it down 20% on sale. After the sale, she marked this price up by 20%. What is the price of the coat now?
- (A) \$48
(B) \$192
(C) \$210.60
(D) \$230.40
(E) \$240
19. Three students are running for class president. Of the 50 students eligible to vote, 26% vote for Sean and 28% vote for Aaron. The rest of the students vote for Jennifer. How many votes does Jennifer receive?
- (A) 13
(B) 14
(C) 23
(D) 27
(E) 46
20. A merchant raises the price of a \$100 item by 20 percent. After finding that he cannot sell the item at the higher price, however, he discounts it by 20 percent. What is the final price of the item?
- (A) \$96
(B) \$97
(C) \$98
(D) \$99
(E) \$100

PROPORTIONS

Remember to put the same thing on the top of both fractions and the same thing on the bottom. For example:

$$\frac{50(\text{miles})}{1(\text{hour})} = \frac{300(\text{miles})}{x(\text{hours})}$$

6. On a certain map, two points 1.8 centimeters apart represent two towns 0.9 kilometers from one another. One centimeter on this map represents how many kilometers?
- (A) 0.1
(B) 0.5
(C) 1
(D) 2
(E) It cannot be determined from the information given.
6. An automobile travelling 55 miles per hour will travel 1,100 miles in how many hours?
- (A) 2
(B) 5
(C) 20
(D) 22
(E) 55
8. If there are 16 ounces in a pound, then 152 ounces equals how many pounds?
- (A) 4
(B) 9.5
(C) 19.5
(D) 152
(E) 2,432
9. How many ounces are there in 5.25 quarts?
(32 ounces = 1 quart)
- (A) 16
(B) 16.8
(C) 52.5
(D) 160
(E) 168
11. Oil is poured into a large, empty tank at the rate of 500 gallons per minute. At the same time, oil is leaking out at a rate of 300 gallons per minute. If the tank is full in 30 minutes, how many gallons of oil can it hold?
- (A) 5,000
(B) 6,000
(C) 9,000
(D) 12,000
(E) 15,000
14. If a snow removal machine can blow 50 pounds of snow every thirty seconds, how many pounds of snow can it blow in one hour?
- (A) 1,500
(B) 3,000
(C) 6,000
(D) 7,500
(E) 9,000
18. For the sale of a \$200,000 home, a real estate broker's commission is \$14,000. At this rate, what is the broker's commission on the sale of a \$150,000 home?
- (A) \$7,000
(B) \$10,500
(C) \$14,000
(D) \$15,000
(E) \$21,000

PROBABILITIES

11. A bowl contains six plastic balls, numbered 12, 31, 16, 19, 26, and 5. If one ball is drawn randomly from the bowl, what is the probability that the number written on the ball is less than 20?

- (A) $\frac{1}{6}$
 (B) $\frac{1}{4}$
 (C) $\frac{1}{3}$
 (D) $\frac{2}{3}$
 (E) $\frac{5}{6}$

12. A six-sided die with faces numbered 1 through 6 is rolled twice. If the first roll is a 4, what is the probability that the next roll will NOT be a 4?

- (A) $\frac{1}{6}$
 (B) $\frac{1}{4}$
 (C) $\frac{2}{5}$
 (D) $\frac{4}{6}$
 (E) $\frac{5}{6}$

Total Sales by Acme Co. Sales Staff

Salesperson	Total Sales
Andrew	4,000
Becky	7,000
Chris	3,500
David	5,500
Erin	8,000

13. Acme Co. is running a lottery for its sales staff. For every \$500 in sales, a salesperson receives one lottery ticket. What is the probability that Chris will win the lottery?

- (A) $\frac{1}{10}$
 (B) $\frac{1}{8}$
 (C) $\frac{7}{50}$
 (D) $\frac{1}{4}$
 (E) $\frac{29}{100}$

16. Sue sells $\frac{1}{4}$ of the tickets for the school lottery to Andrew. Sue then sells $\frac{2}{3}$ of the remaining tickets to Bob. Of the tickets Sue has left, Cathy buys $\frac{3}{5}$. Sue then purchases all remaining unsold tickets herself. What is the probability that Cathy will win the school lottery?

- (A) 10%
 (B) 15%
 (C) 25%
 (D) 50%
 (E) $66\frac{2}{3}\%$

22. A two-sided coin is tossed three times. What is the probability that "heads" will be the result *exactly* two times?

(A) $\frac{3}{4}$

(B) $\frac{2}{3}$

(C) $\frac{1}{2}$

(D) $\frac{3}{8}$

(E) $\frac{1}{4}$

23. A single die with six faces numbered 1 through 6 is thrown twice. If the numeral that faces upward as the result of each throw is recorded, what is the probability that the sum of the two numbers is less than 10?

(A) $\frac{5}{6}$

(B) $\frac{2}{3}$

(C) $\frac{1}{2}$

(D) $\frac{1}{3}$

(E) $\frac{1}{6}$



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