

Directions: Choose the letter that corresponds to the correct answer

1. A farmer is raising a hog that weighed 20 lbs. when he bought it. He expects it to gain 12 pounds per month. He will sell it when it weighs 200 lbs. How many months will it be before he will sell the animal?

- A. 14
- B. 15
- C. 24
- D. 25

2. Twenty-five more girls than the number of boys participate in interscholastic sports at a local high school. If the number of girls participating is 105, how many boys participate?

- A. 80
- B. 81
- C. 82
- D. 83

3. What is the slope of the line perpendicular to the line $y = -5x + 9$?

- A. 5
- B. -5
- C. 1/5
- D. -1/5

4. Simplify: $\frac{5}{8} + \frac{1}{2} - \frac{5}{16}$

- A. $\frac{19}{48}$
- B. $\frac{15}{32}$
- C. $\frac{15}{48}$
- D. $\frac{19}{32}$

5. Subtract and simplify: $\frac{x^2 + 3x + 2}{x^2 + 6x + 5} - \frac{x^2 + 4x - 12}{x^2 + 11x + 30}$

- A. $\frac{2}{x+5}$
- B. $\frac{3}{x+2}$
- C. $\frac{x+4}{x+6}$

D. $\frac{4}{x+5}$

6. Multiply and simplify: $\frac{2x+4}{x-5} \times \frac{3x-15}{x+2}$

- A. $2x$
- B. 5
- C. $4x$
- D. 6

7. Divide and simplify: $\frac{-2x+4}{x-1} \div (x-2)$

- A. $x+2$
- B. 2
- C. $\frac{-2}{x-1}$
- D. $\frac{x+1}{4}$

8. A class contains 2 boys for every 1 girl. 75% of the boys have taken Algebra 2, whereas 50% of the girls have taken Algebra 2. What is the ratio of boys who have taken Algebra 2 to girls who have taken Algebra 2?

- A. $2 : 1$
- B. $2 : 2$
- C. $3 : 1$
- D. $3 : 2$

9. A patient must take his medication every 7 hours starting at 7:00 A.M., Sunday. On what day will the patient first receive his medication at 6 P.M.?

- A. Monday
- B. Tuesday
- C. Wednesday
- D. Thursday

10. Tommy had a bag containing colored marbles. The colors are red, green, and white. There are thrice as many green marbles as red marbles and twice as many white marbles as green marbles. If a marble is drawn from the bag, what is the probability of getting a white marble?

- A. $\frac{3}{5}$
- B. $\frac{2}{5}$
- C. $\frac{1}{3}$
- D. $\frac{3}{10}$

11. Which term of the arithmetic sequence 2, 5, 8... is equal to 227?

- A. 74th term
- B. 75th term
- C. 76th term
- D. 77th term

12. How many consecutive odd integers of an arithmetic sequence, starting from 9, must be added in order to obtain a sum of 15,860?

- A. 119
- B. 120
- C. 121
- D. 122

13. Which of these numbers cannot be a probability?

- A. -0.00001
- B. 0.5
- C. 0
- D. 1

14. The blood groups of 200 people is distributed as follows: 50 have type **A** blood, 65 have **B** blood type, 70 have **O** blood type and 15 have type **AB** blood. If a person from this group is selected at random, what is the probability that this person has O blood type?

- A. 1
- B. 0.5

- C. 0.35
- D. 0.45

15. There are 32 marbles in a jar: 14 blue, 10 red, 5 green, and 3 yellow. Sally pulls one marble, randomly, from the jar. Without replacing the marble, she pulls another marble. What is the probability that both marbles will be red?

- A. $\frac{41}{456}$
- B. $\frac{44}{476}$
- C. $\frac{45}{496}$
- D. $\frac{40}{426}$

16. Which of the following represents the equation of the line that passes through the point (2, 3) with a slope of $-\frac{1}{3}$?

- A. $y = 2x + 4$
- B. $y = 4x + 2$
- C. $y = -\frac{1}{3}x + \frac{11}{3}$
- D. $y = -3x + \frac{11}{3}$

17. A group of 6 students are going to have a vote to determine who should be President, Vice President, Secretary, and Treasurer with only 1 person per job. How many different groups can be formed from the 6 students?

- A. 100
- B. 250
- C. 180
- D. 360

18. If the number 89.8756 is rounded to the nearest hundredth, what will be the sum of the tenths and hundredths place of the resulting number?

- A. 12
- B. 14
- C. 16

D. 20

19. The sum of 4 consecutive even integers is 36, what is the 3rd largest integer in the set?

- A. 6
- B. 8
- C. 10
- D. 12

20. Find the sum of the series $91 + 85 + 79 + 73 + \dots + (-29)$.

- A. 144
- B. - 144
- C. 651
- D. - 651

21. What is the median of the first 100 non-negative integers?

- A. 49
- B. 49.5
- C. 50
- D. 50.5

22. How many different ways can five students be seated in a round table?

- A. 5
- B. 10
- C. 24
- D. 25

23. If the ratio of milk cartons to juice boxes is $13:x$ and there are 39 milk cartons and 18 juice boxes, what is the value of x ?

- A. 4
- B. 6
- C. 8
- D. 12

24. What the ratio of the perimeters of two similar polygon if the ratio of their areas is 64 : 729?

- A. 2 : 3
- B. 4 : 9
- C. 8 : 27
- D. 16 : 81

25. If the average of **a** and **b** equals the average of **a**, **b**, and **c** then express **c** in terms of **a** and **b**.

- A. $a + b$
- B. $2(a + b)$
- C. $\frac{a+b}{2}$
- D. $\frac{a+b}{3}$

26. Rita is selling concert tickets. She sold 4 to her cousins, then gave half of what she had left to her brother for him to sell. She sold twelve more to her friends and had 15 tickets left to sell. How many tickets did she have in all?

- A. 57
- B. 58
- C. 59
- D. 60

27. Jane had only 100 candies after giving some of them to her playmates. She gave one-sixth to Catherine, two-fifths to Farah, and 4 pieces to Wendy. How many candies did Jane originally have?

- A. 250
- B. 240
- C. 210
- D. 150

28. The average of 7 numbers is 24. The smallest of the numbers is 2 and the largest of the numbers is 31. What is the average of the middle 5 numbers?

- A. 25

- B. 26
- C. 27
- D. 28

29. Eric wishes to shift the graph of the function $f(x) = x^2$ four places to the right and six places down from the origin (0,0). Which equation represents this translation?

- A. $f(x) = x - 4^2 + 6$
- B. $f(x) = (x - 4)^2 - 6$
- C. $f(x) = (x^2 - 4)^2 - 6$
- D. $f(x) = x + 4^2 - 6$

30. What is the slope intercept form of $(13x - 5x) + 12 - 2y = 6$?

- A. $y = 3x - 9$
- B. $y = 4x + 3$
- C. $y = 6x + 2$
- D. $y = -2x + 5$

31. A and B are reciprocals (when multiplied together their product is 1). If $A < -1$, then B must be which of the following?

- A. $0 < B < 1$
- B. $-1 < B < 0$
- C. $B < -1$
- D. $B < 0$

32. At what point on the Cartesian plane do the following two lines intersect?

$$y/3 - 7/3 = x \text{ and } y/3 + 4/3 = x$$

- A. (4, 3)
- B. (6, 2)

- C. The lines do not intersect.
D. (5, -2)

33. The slope of the line represented by the equation $2(x - 3) - 6y = 10$ is equal to what?

- A. $-1/2$
B. $1/3$
C. $1/2$
D. 2

34. Jenny's house is 2 km away from her school. One day when going to school, Jenny runs for 20 minutes and arrived 5 minutes late. How many minutes earlier would Jenny be if she would use her bicycle at a rate of one-third kilometer per minute?

- A. 5 minutes
B. 6 minutes
C. 8 minutes
D. 9 minutes

35. Which coordinates satisfy the inequality: $y + 3 > -3(x - 2)$

- A. (0,2)
B. (1,0)
C. (-3, 15)
D. (2, -2)