

Ninth Grade

Name:

Date:

1. A man selling hot dogs, french fries, and a soda as a combo meal at a fairground has to pay the country 250 dollars each day plus 2 dollars per combo meal sold. The price of a combo is 7 dollars. How many combo meals must he sell each day to break even?

- A. 25 B. 50 C. 35 D. 70**

2. Simplify $(4^{1/3})^3 \times (6^{1/6})^6 \times (3^{1/2})^4$

- A. 416 B. 116 C. 316 D. 216**

3. a. Choose the correct information about the the graphs of the two lines below

$$5x - y - 2 = 0$$
$$y - 3x = 9$$

- A. Intersect at (5.5, 25.5) B. Parallel C. Identical D. Perpendicular**

b. What are the slopes of the graphs? b. _____ and _____

4. A rectangle has a perimeter of 18 inches. The long side is 1 inch more than three times the small side. How big is the small side

The small side is _____

5. The seventh term of the sequence 16, 9, 2, -5, ... is **A. -37 B. 37 C. 26 D. -26**

6. Find the degree of $2x^3 + -6x^4 + 4x^2 - 1$

- A. 3 B. 2 C. 4 D. 3 + 4 + 2**

7. Find the greatest common factor of the terms of $16x^6 + 8x^4 + 2x^{12}$

- A. $8x^{12}$ B. $2x^4$ C. x^6 D. $4x^6$**

8. What is the maximum or minimum value of $y = x^2 + 3x - 10$?

The value is $y =$ _____

9.

Evaluate $|y - x| + -y^2 + 2z + x^2y^3z^{-2}$ for $x = 3$, $y = 2$, and $z = -2$

10. Solve $3(2x - 1) = 4x + 5$

11. Simplify $(4x^3 - 5x^3 + x + 8) - (3x^3 - 4x + 9 + 6x^2)$

12. What is the standard form of the product $(3x - 1)(5x + 3)$

A. $15x^2 + 2x + 3$ B. $15x^2 + 4x - 3$ C. $15x^2 + 4x + 3$ D. $15x^2 + 2x - 3$

13. Find the median and mode of this set of data

5, 1, 3, 5, 8, 10, 8, 14

14. Find the equations that are parallel and perpendicular to $x + 5y = 50$ and passing through the points (5, 10)

15. Simplify $(1.5 \times 10^8)(6 \times 10^{-8})$

16. Solve the inequality $2y - 4x < 6$ for y . Then, give 2 points that are solutions

17. a. Factor $x^2 - 8x - 20$

b. Solve $x^2 - 8x - 20$

18. Solve $12x^2 + 7x - 10$

19. Solve the following proportion by setting up a proportion

The hours of operation of a park is 8:00 am - 10:00 pm Wednesday through Sunday. A Ferris wheel can make a 360 degrees turn 5 times every 10 minutes. How many 360 degrees turn can the Ferris wheel make in a week?

20. The solution of the system $ax - 4y = 8$ and $6x + by = -30$ is $(-2, -3)$

1. Find a and b

2. Replace a and b into the system. Then solve the system to verify that the solution is indeed $(-2, -3)$

21. Suppose $x - 25 = -75$, what is $x + 25$? What is $x + 50$?

22. What is the length of the diagonal of a rectangle with sides equal to 9 and 12?

23. Solve and graph $4|2x - 5| \geq 20$

24. The product of two positive integers is 45. The second is 4 more than the first. Find the integers by setting up an equation

25. What is the percent of decrease from 12 to 4?

26. A company enrolls computer programmers and secretaries at a ratio of 5 to 3. There are a total of 24 secretaries and computer programmers. How many people are secretaries? How many are computer programmers?

27. The price p of an item is sold with a discount of 20%. The expression that represents the sale price of the item is _____

A. $p - 20p$ B. $0.20p$ C. $p + 0.20p$ D. $p - 0.20p$

28. The sides of a rectangle are $-5x + 10$ and $x - 4$

a. Write an expression for the perimeter.

b. Write an expression for the area.

c. For what value of x is the area the biggest?

29. Graph the following system of inequalities?

$$\begin{aligned} 2y &> x + 4 \\ 3y + 3x &> 13 \end{aligned}$$

30. John has a 15 feet ladder. When he leaned the ladder against a building, the ladder makes an angle of 60 degrees with the ground. What is the distance from the side of the building to the base of the ladder?