1. Multiply: \(-3(2b - 7b)^2\)

2. Solve for \(x\):

\[
\frac{2x - 5}{4} = \frac{x}{3}
\]

3. Write \(9 \frac{3}{16}\) as a percent.

4. Multiply:

\[2v^4(4v^3 - 5v^2 - 4v + 3)\]

5. Simplify:

\[
\frac{36x^{-7}y^3z^{11}}{12x^{-2}y^6z^{-4}}
\]

Express the answer using positive exponents only.

6. Find the domain and range for the function graphed below.

7. Let \(f(x) = |x| - 4\). Find \(f(-5)\).
8. Use the graph of the function \( f(x) \) to find \( f^{-1}(-2) \).

\[ f(x) \]

\[ \quad \]

9. Determine the value(s) of \( x \) for which the function is undefined: \( h(x) = \frac{9x}{x(x^2 - 36)} \)

\[ h(x) \]

\[ \quad \]

10. Find the general form of the equation of the line that passes through the points \((-8,-1)\) and \((-3,5)\).

\[ [A] \ 6x + 5y = -43 \quad [B] \ 5x + 6y = 43 \quad [C] \ 5x - 6y = -43 \quad [D] \ 6x - 5y = -43 \]

\[ \quad \]

11. Graph: \( y = 2x + 2 \)

\[ \quad \]

12. Find the point of intersection of the two lines: \( \frac{x + 2y = 2}{4x + 5y = -1} \)

\[ [A] \ (4,3) \quad [B] \ (3,-4) \quad [C] \ (4,-3) \quad [D] \ (-4,3) \]

\[ \quad \]
13. Solve: \( 4x^2 + 5x = -1 \)  
[A] \(-1, \frac{-1}{4}\)  
[B] \(1, -\frac{1}{4}\)  
[C] \(-1, \frac{1}{4}\)  
[D] \(1, \frac{1}{4}\)  
13. ________________

14. Graph the parabola: \( y = (x + 1)^2 - 4 \)

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{X} & -6 & -4 & -2 & 2 & 4 & 6 \\
\hline
\text{Y} & -6 & -4 & -2 & 2 & 4 & 6 \\
\hline
\end{array}
\]

14. ________________

15. Let \( f(x) = 1 - x^2 \), \( g(x) = 1 - x \). Find \( (f - g)(x) \).

15. ________________

16. If \( f(x) = x^3 \) and \( g(x) = -3 - 3x^2 \), find \( f(g(x)) \).

16. ________________

17. Solve: \( |4 - 0.25x| + 5 = 6 \)

17. ________________

18. Add: \( \frac{2}{x + 9} + \frac{5}{x - 9} \)

18. ________________

19. Janet can paint a kitchen in 4 hours, and Charles can paint the same kitchen in 6 hours. How long would it take for both of them working together to paint the kitchen?

[A] 10 hrs.  [B] \( \frac{5}{12} \) hr  [C] 5 hrs.  [D] \( 2\frac{2}{5} \) hrs.

19. ________________
20. Write an exponential function to model the following situation. Then predict the value of the function after 5 years (to the nearest whole number):

An initial population of 330 animals that is increasing at an annual rate of 12%.

[A] \( f(x) = 330(0.88)^x \); 174  
[B] \( f(x) = 330(0.88)^x \); 1452  
[C] \( f(x) = 330(1.12)^x \); 1848  
[D] \( f(x) = 330(1.12)^x \); 582

21. A tractor had a value of $10600 when it was purchased in 1992, and it was worth $5400 in 1998. If the tractor’s value depreciated in a linear fashion, what was it worth in 2001?

22. The Forest Service introduces 50 wolves into a protected game preserve. The population of the herd is given by \( N = \frac{10(5+3t)}{1+0.04t} \), where \( t \) is time given in years. Find the population of the wolf pack when \( t \) is 10 years.

23. A population of bacteria present in a culture after \( t \) minutes is given by the formula:

\[ P = P_0e^{0.315t} \], where \( P_0 \) is the initial number of bacteria in the culture and \( t \) is the time in hours.

If there are initially 50 bacteria in the culture, how long will it take the number of bacteria to triple (to the nearest tenth of an hour)?

24. Julio’s neighborhood has a community garden. Julio knows the width of the garden is 20 feet and the area is 760 square feet. How many feet of fencing will he need to enclose the garden?

25. A manufacturer of cast-iron chimeneas has daily production costs of

\[ C(x) = 600 - 10x + 0.5x^2 \], where \( C \) is the total cost in dollars and \( x \) is the number of units produced. How many chimeneas should be produced each day to yield a minimum cost?