Review:

1. Simplify: \( \sqrt[3]{\frac{-16x^3}{2y^6}} \).

2. Perform the indicated operations and simplify: \( m^{n+1}r^n \cdot 3m^n r^{2n-1} \).

3. Perform the indicated operations and simplify: \( \frac{ab}{1 + \frac{1}{a + b}} \).

4. Rationalize the denominator: \( \frac{2}{\sqrt{2} + b} \).

5. Evaluate \( 5x + 1 \cdot 3^\frac{3}{4} - 7 - x^0 \) for \( x = 3 \).

6. Evaluate \( -2b^2 \cdot -1 \) when \( b = -2 \).

7. Simplify completely: \( 2\sqrt{50} - 7\sqrt{18} + \sqrt{8} \).

8. Simplify completely: \( 2u \cdot 3u^2 - 1 - 8u^3 - 14u + 6 \).

9. Simplify completely: \( 4(2x+1)^2 + 3(2x+1) + 1 \).

10. Factor completely: \( 32x^4y - 162y \).

11. Perform the indicated operation and simplify completely: \( \frac{z^2 + z - 12}{2z^2 + 6z} \cdot \frac{z^2 + 3z}{6z + 24} \).

12. Perform the indicated operation and simplify: \( \frac{3c}{c - 2} + \frac{c + 1}{2 - c} \).

13. Solve for \( z \): \( 7z - (4z - 9) = 24 + 5(z - 1) \).

14. Solve for \( x \): \( \frac{a}{3} + 5x = b \left( \frac{x}{3} + 2 \right) \).

15. Solve for \( t \): \( 2t^2 + 4t = 9t + 18 \).

16. Solve for \( s \): \( -2s^2 - 4s + 2s^3 = 0 \).
17. Solve for \( p \): \( \frac{4}{p} - \frac{2}{p+1} = 3 \).

18. To get a B in a course a student must have an average of at least 80% on five tests that are worth 100 points each. On the first four tests a student scores 92%, 83%, 61%, and 71%. Determine the lowest score the student can receive on the fifth test to assure a grade of B for the course.

19. The area of a rectangle is 84 square feet and the length is 6 feet longer than the width. If \( w \) represents the width, write an equation that could be used to find the dimensions of the rectangle.

20. A furniture store drops the price of a table 37 percent to a sale price of $364.77. What is the original price?

21. Solve for \( t \): \( (t+2)^2 = 8 \).

22. Solve for \( z \): \( z^2 - 4z + 6 = 0 \).

23. Perform the indicated operation and simplify: \( \sqrt{-2} \cdot \sqrt{-24} \).

24. Solve for \( r \): \( 5 - 3r \leq 8 \).

25. Solve for \( x \): \( |2x+1| \geq 7 \).

26. Find the domain of \( y = \sqrt{4 - 5x} \).

27. Find the \( x \)-intercepts of \( y - 2x^2 - 13x = 6 \).

28. Find the equation of the graph at the right:

29. Find the distance between (6,3) and (-2,4).

30. Find the midpoint of the line segment joining (6,9) and (-3,1).
31. Find the slope and y-intercept of the line \( 5x + 4y = 8 \).

32. Find the equation of the line perpendicular to \( 3y + 2x - 3 = 0 \) passing through (4,-1).

33. Find \( f(-4) \) if \( f(x) = \frac{2x^2 - 11}{3x} \).

34. Find \( f(b + 2) \) if \( f(x) = 5 - 3(x + 1) \).

35. Find the domain and the range of the function graphed at the right:

36. If (5,6) is a point on the graph of \( y = g(x) \), find a point on the inverse graph, \( g^{-1}(x) \).

37. If \( h(t) = \frac{t}{t + 1} \), find the value of \( t \) so that \( h(t) = 3 \).

38. If the graph of \( y = f(x) \) is at the right, sketch the graph of \( y = |f(x)| \).

39. Rewrite \( 10^b = a \) in logarithmic form.

40. Rewrite as a single logarithm: \( \frac{1}{2} \log x + 4 \log y - 2 \log z \).

41. Solve for \( t \): \( 3^{2t} = 27^{2t-1} \).

42. Solve the system of equations:
\[
\begin{align*}
4x + 3y &= 0 \\
8x &= 9y + 2
\end{align*}
\]

43. Express the length of side \( a \) in terms of \( m \):