

The following problems cover the skills that are necessary to be successful on Test A.

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

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

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

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

5. Evaluate $(5x+1)^{3/4} - (7-x)^0$ for $x = 3$.

6. Evaluate $-(2b^2)^{-1}$ when $b = -2$.

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

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

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: $\sqrt{-2} \cdot \sqrt{-24}$.

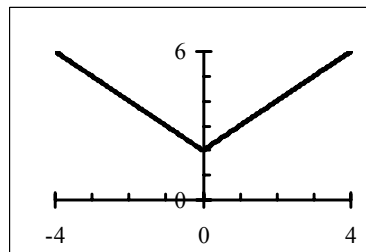
24. Solve for r : $5 - 3r \leq 8$.

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 $(-3,1)$.

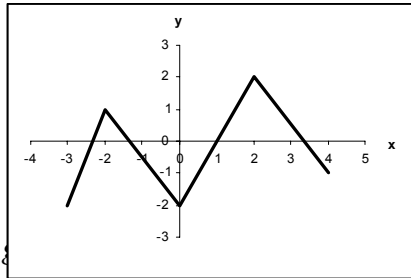
31. Find the slope and y -intercept of the line $5x + 4y = 8$.

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 $f(x) = 5 - 3(x+1)$.

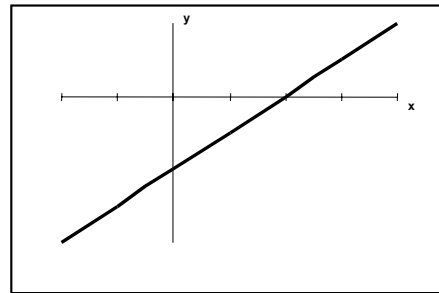
35. Find the domain and the range of the function graphed at the right:



36. If $(5, 6)$ is a point on the graph of $y = g(x)$, then $(6, 5)$ is a point on the 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:
$$\begin{cases} 4x + 3y = 0 \\ 8x = 9y + 2 \end{cases}$$

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

