1. On a separate sheet of graph paper, graph y > x² + 2x + 1 and y < x² - 4x + 4 and find the intersection.

2. Solve: $\sqrt{x + 2} = x$

3. Solve $(x+2)^{3/4} + 3 = 30$

4. Solve: $\sqrt[3]{3x + 1} + 10 = 5$

5. Simplify $\left(\dfrac{\sqrt{b}}{\sqrt[4]{a^3}} \right)^{-8}$

6. Solve 3x³ = 48x

7. Explain how the function has changed from the parent graph. $f(x) = -\sqrt{x+8} - 5$

8. Write an equation for the translation of $y = \dfrac{5}{x}$ that has the asymptotes x = -2 and y = -8.

9. Simplify $\sqrt[7]{x^3} \cdot \sqrt[14]{x^5}$

10. Simplify: $\sqrt[4]{10x^7 y^3} \cdot \sqrt[4]{60xy^8}$

11. Describe how the parabola $y = -(x - 4)^2 + 3$ is shifted from $y = x^2$.

12. Sketch the graph of the function on a separate piece of paper. $y = x^2 + 15x + 54$
    a. Find the x-intercepts.
    b. Find the axis of symmetry.
    c. Find the vertex.
    d. Find the y-intercept.
    e. Is the vertex a max or a min?

13. Find the equation of a quadratic function with intercepts at (-2, 0) and (4, 0) and a vertex at (1, 6).

For #14-16, **factor completely** and find the **solutions**.
14. $2v^2 + 11v + 5 = 0$

15. $7a^2 + 53a + 28 = 0$

16. $16b^2 + 60b - 100 = 0$

For #17-19, find the **discriminant** and tell the number and type of solutions.
17. $b^2 + 16b + 64 = 0$

18. $x^2 - 4x + 24 = 0$

19. $2k^2 + 22k + 60 = 0$

20. The following function models how much money a certain company makes after a certain amount of time. At what time did they make the least amount of money?

$v(t) = 800 - 28t + 0.25t^2$