

1. Identify the transformations from the parent function:  $f(x) = -\sqrt{\frac{1}{2}x} + 4$

2. Write the arithmetic sequence formula for the following:  $a_1 = 7; d = -6$

3. Write the domain of the function in interval notation:  $f(x) = \sqrt{x+6} - 5$

4. Use the piecewise function to evaluate:  $f(x) = \begin{cases} 2x - 1, & \text{if } x \geq -5 \\ -x^2 - 9, & \text{if } x < -5 \end{cases}$

$$f(-10) =$$

$$f(5) =$$

5. Write the **domain and range**, in interval notation, for the function:  $f(x) = \log_3(x + 8) - 9$

6. Write the **domain and range**, in interval notation, for the function:  $f(x) = (x - 9)^2 - 7$

7. Solve the logarithmic equation:  $\log_5(2x - 7) = 3$

8. Solve the logarithmic equation:  $4 + \ln 3x = 9$

9. Solve the logarithmic equation:  $-6 - 4e^{x-1} = -18$

10. In how many ways can a 50 meter dash with 14 participants have a first, second, and third place finishers?