

Algebra II
Functions #2

Name _____

Do the following problems without your GC, unless stated.

1. Describe how the following two functions could compare to each other:

$$f(x) = 4x + 2$$

$$g(x) = 4x - 1$$

Parent function: _____

State the domain and range for each function. _____

2. Describe how the following two functions could compare to each other:

$$f(x) = 2x^2 - 3$$

$$g(x) = 2x^2 + 5$$

Parent function: _____

State the domain and range for each function. _____

3. Describe how the following two functions could compare to each other:

$$f(x) = |x - 3|$$

$$g(x) = |x + 5|$$

Parent function: _____

State the domain and range for each function. _____

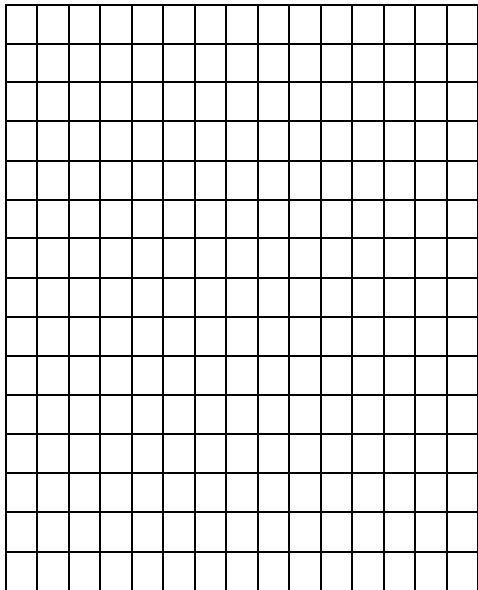
4. Write a function that is shifted 2 units up from the function $f(x) = x^3 - 2$.
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5. Write a function that is shifted 4 units left from the function $f(x) = \log(x + 2)$.
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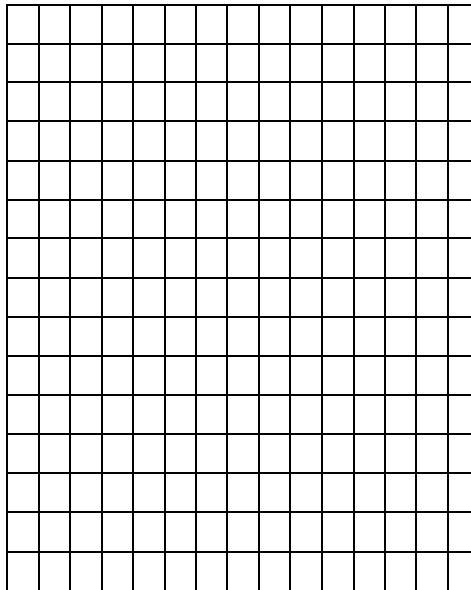
6. Write a function that is shifted 3 units down and 2 units right from the function $f(x) = \sqrt{x - 1} + 4$
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7. For each of the following graph the function and its parent function. Describe the transformation and state the domain and range of the function (not the parent function). You may use a GC to verify the domain and range.

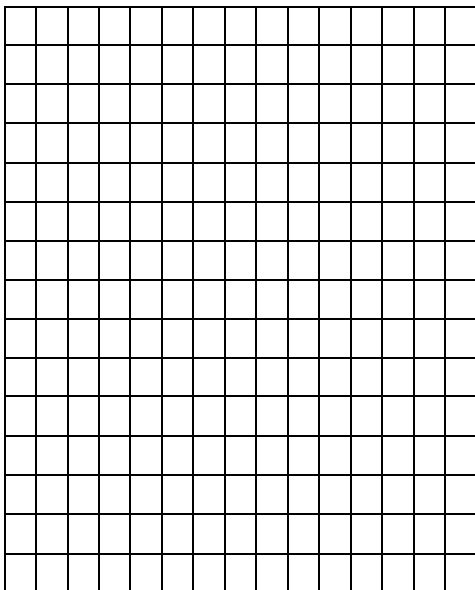
a. $g(x) = x + 4$



b. $h(x) = (x + 3)^2$



c. $f(x) = |x - 5| + 4$



8. In the same coordinate plane sketch the graph of the parent quadratic function and the graph of a quadratic function that has no x-intercepts. Describe the transformation(s) of the parent function. (There are many correct answers!!)