

Algebra II  
Functions #3

Name \_\_\_\_\_

Do the following problems without your GC, unless stated.

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

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

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

Parent function: \_\_\_\_\_

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State the domain and range for each function. \_\_\_\_\_

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

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

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

Parent function: \_\_\_\_\_

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State the domain and range for each function. \_\_\_\_\_

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

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

$$g(x) = -\frac{1}{2} |x + 5|$$

Parent function: \_\_\_\_\_

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State the domain and range for each function. \_\_\_\_\_

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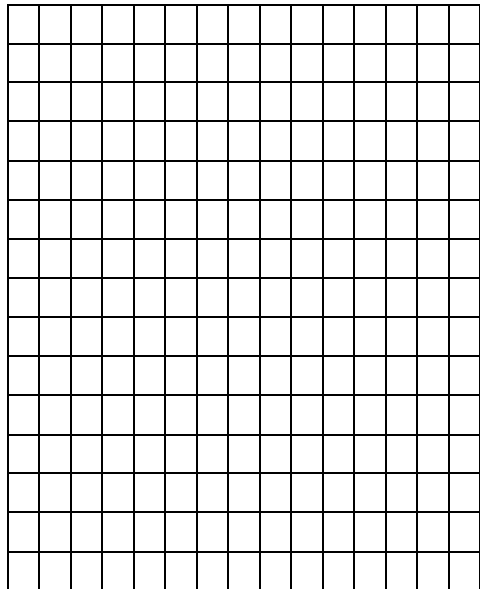
4. Write a function that is less steep than  $f(x) = 7x$ .
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5. Write a function that is more steep and reflects over the x-axis than  $f(x) = \log(x - 3)$ .
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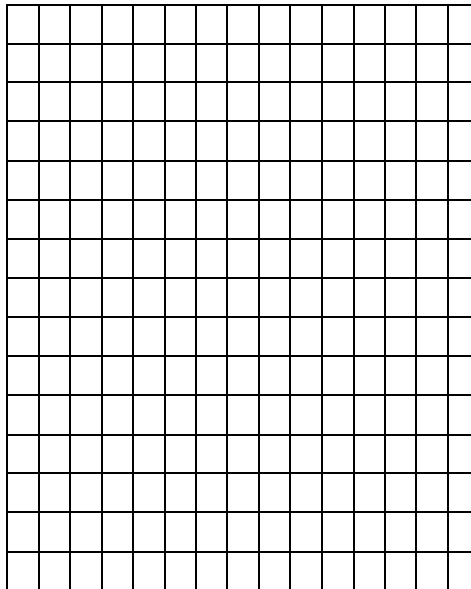
6. Write a function that is shifted 2 units down and wider than the function  $f(x) = \sqrt{x} + 6$
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7. For each of the following graph the function and its parent function. Describe the transformation and state the domain and range of the function (not the parent function). You may use a GC to verify the domain and range.

a.  $g(x) = -x^3 + 4$



b.  $h(x) = 2\sqrt{x-3} - 1$



c.  $f(x) = f(x) = -\frac{1}{2}|x+5| - 3$

