**Section 2.6**

2. Suppose the graph of is given. Describe how the graph of each function can be obtained from the graph of .

a.

b.

c.

d.

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4. Explain how the graph of is obtained from the graph of .

a. ,

b. ,

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6. Use the graph of to graph the following functions.

a.

b.

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1. Suppose the graph of is given. Describe how the graph of each function can be obtained from the graph of .

a.

b.

c.

d.

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a. Shift down 3 units.

b. Reflect about (over) the -axis.

c. Shrink vertically by .

d. Shift 4 units to the left and 1 unit down.

3. Explain how the graph of is obtained from the graph of .

a. ,

b. ,

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a. Shift left 8 units.

b. Reflect about (over) the -axis then shift up 5 units.

5. Use the graph of to graph the following functions.

a.

b.

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8. Sketch the graph of the function

, not by plotting points, but by starting with the graph of a standard function and applying transformations.

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7. Sketch the graph of the function , not by plotting points, but by starting with the graph of a standard function and applying transformations.

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The standard function is and its graph looks like a “v”. The graph of would look the same except it would be vertically stretched by a factor of 5. In other words, you would multiply the -values by 5.

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10. Sketch the graph of the function

, not by plotting points, but by starting with the graph of a standard function and applying transformations.

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9. Sketch the graph of the function

, not by plotting points, but by starting with the graph of a standard function and applying transformations.

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The standard function is and its graph looks like a parabola. The graph of

would look the same except it would be shifted to the right 5, vertically shrunk by a factor of , reflected over the -axis and shifted up 4. In other words, you would add 5 to the -values, multiply the -values by and add 4 to the -values.

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12. A function is given, and the indicated transformations are applied to its graph. Write the equation for the final transformed graph.

a. ; shift upward 4 units

b. ; reflect in the -axis, shift 5 units to the right, and shift downward 7 units

c. ; shrink vertically by a factor of , shift to the left 9 units and shift upward 7 units

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14. The graphs of and are given. Find a formula for the function .



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11. A function is given, and the indicated transformations are applied to its graph. Write the equation for the final transformed graph.

a. ; shift 9 units to the right

b. ; shift 3 units to the left and reflect in (over) the -axis

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a.

b.

13. The graphs of and are given. Find a formula for the function .



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The standard function is . The graph of looks like the graph of the standard function except it was reflected over the -axis and shifted to the left 1 unit. So, the equation would be

16. Determine whether the function

is even, odd or neither. Then sketch the graph of . If is even or odd, use symmetry to sketch its graph.

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18. Determine whether the function

is even, odd or neither. Then sketch the graph of . If is even or odd, use symmetry to sketch its graph.

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15. Determine whether the function is even, odd or neither. Then sketch the graph of . If is even or odd, use symmetry to sketch its graph.

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Since then is even.

By using symmetry (even symmetry), we know and



17. Determine whether the function is even, odd or neither. Then sketch the graph of . If is even or odd, use symmetry to sketch its graph.

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Since then is odd.

By using symmetry (odd symmetry), we know and

