

LESSON
9.1

Practice B

For use with the lesson "Graph $y = ax^2 + c$ "

Use the quadratic function to complete the table of values.

1. $y = 9x^2$

| | | | | | |
|----------|----|----|---|---|---|
| x | -2 | -1 | 0 | 1 | 2 |
| y | ? | ? | ? | ? | ? |

2. $y = -5x^2$

| | | | | | |
|----------|----|----|---|---|---|
| x | -2 | -1 | 0 | 1 | 2 |
| y | ? | ? | ? | ? | ? |

3. $y = \frac{5}{2}x^2 + 1$

| | | | | | |
|----------|----|----|---|---|---|
| x | -4 | -2 | 0 | 2 | 4 |
| y | ? | ? | ? | ? | ? |

4. $y = -\frac{1}{8}x^2 - 2$

| | | | | | |
|----------|-----|----|---|---|----|
| x | -16 | -8 | 0 | 8 | 16 |
| y | ? | ? | ? | ? | ? |

5. $y = -4x^2 + 3$

| | | | | | |
|----------|----|----|---|---|---|
| x | -2 | -1 | 0 | 1 | 2 |
| y | ? | ? | ? | ? | ? |

6. $y = 6x^2 - 5$

| | | | | | |
|----------|----|----|---|---|---|
| x | -2 | -1 | 0 | 1 | 2 |
| y | ? | ? | ? | ? | ? |

Match the function with its graph.

7. $y = -4x^2 + 3$

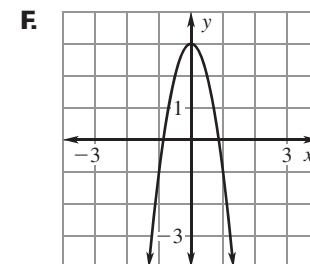
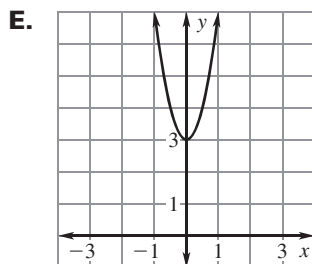
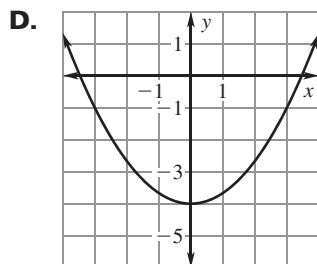
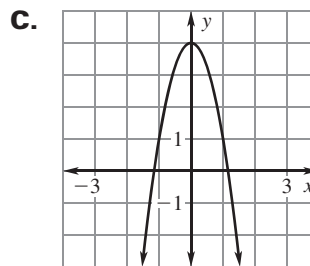
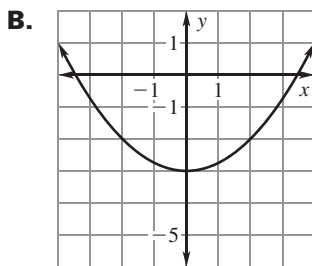
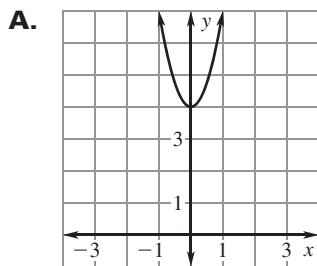
8. $y = 3x^2 + 4$

9. $y = \frac{1}{3}x^2 - 4$

10. $y = \frac{1}{4}x^2 - 3$

11. $y = -3x^2 + 4$

12. $y = 4x^2 + 3$



Describe how you can use the graph of $y = x^2$ to graph the given function.

13. $y = x^2 - 8$

14. $y = -x^2 + 4$

15. $y = 2x^2 + 3$

16. $y = -5x^2 + 1$

17. $y = \frac{1}{2}x^2 - 2$

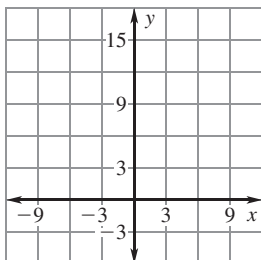
18. $y = -\frac{3}{4}x^2 + 5$

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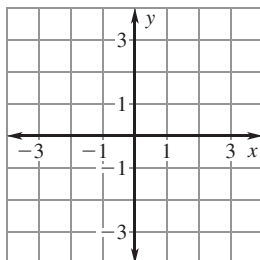
Practice B *continued*
For use with the lesson "Graph $y = ax^2 + c$ "

Graph the function and identify its domain and range. Compare the graph with the graph of $y = x^2$.

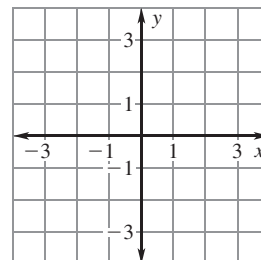
19. $y = x^2 + 9$



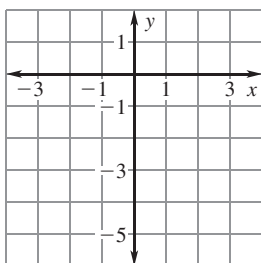
20. $y = -\frac{1}{5}x^2$



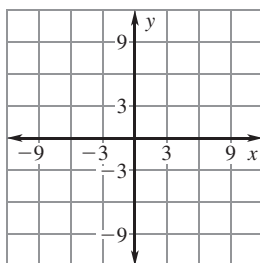
21. $y = -\frac{3}{2}x^2$



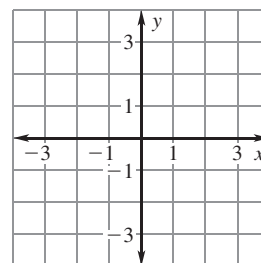
22. $y = x^2 - 3.5$



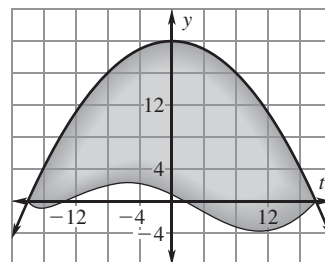
23. $y = 2x^2 - 9$



24. $y = -5x^2 + 2$

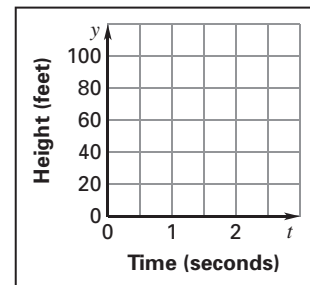


25. **Serving Plate** The top view of a freeform serving plate you made in a ceramics class is shown in the graph. One edge of the plate can be modeled by the graph of the function $y = -\frac{5}{81}x^2 + 20$ where x and y are measured in inches.



- Find the domain of the function in this situation.
- Find the range of the function in this situation.

26. **Roof Shingle** A roof shingle is dropped from a rooftop that is 100 feet above the ground. The height y (in feet) of the dropped roof shingle is given by the function $y = -16t^2 + 100$ where t is the time (in seconds) since the shingle is dropped.



- Graph the function.
- Identify the domain and range of the function in this situation.
- Use the graph to estimate the shingle's height at 1 second.
- Use the graph to estimate when the shingle is at a height of 50 feet.
- Use the graph to estimate when the shingle is at a height of 0 feet.