

1-2

Practice

Form G

Standard Form of a Quadratic Function

Identify the vertex, the axis of symmetry, the maximum or minimum value, and the range of each parabola.

1. $y = x^2 - 4x + 1$

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

3. $y = -x^2 - 6x - 10$

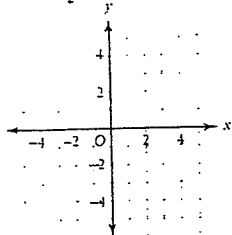
4. $y = 3x^2 + 18x + 32$

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

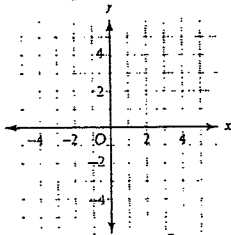
6. $y = -3x^2 + 4x$

Graph each function.

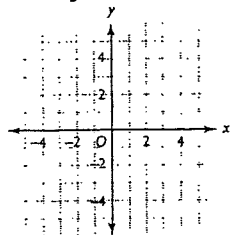
7. $y = x^2 + 2x - 5$



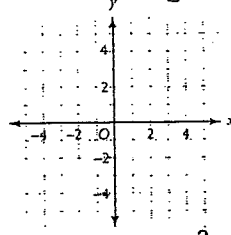
8. $y = -x^2 + 3x + 1$



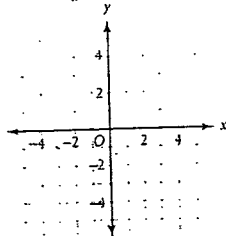
9. $y = 2x^2 + 4x - 4$



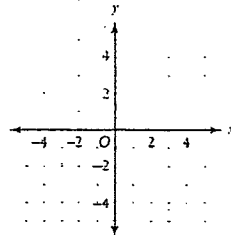
10. $y = -\frac{1}{2}x^2 - 3x + 3$



11. $y = 3x^2 - 8x$



12. $y = -3x^2 + 18x - 27$



Write each function in vertex form.

13. $y = x^2 - 8x + 19$

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

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

16. $y = 2x^2 + x$

17. $y = 2x^2 - 12x + 11$

18. $y = -2x^2 - 4x + 6$

19. A small independent motion picture company determines the profit P for producing n DVD copies of a recent release is $P = -0.02n^2 + 3.40n - 16$. P is the profit in thousands of dollars and n is in thousands of units.
- How many DVDs should the company produce to maximize the profit? (*hint: is vertex a max?*)
 - What will the maximized profit be?

20. A local nursery sells a large number of ornamental trees every year. The owners have determined the cost per tree C for buying and caring for each tree before it is sold is $C = 0.001n^2 - 0.3n + 50$. In this function, C is the cost per tree in dollars and n is the number of trees in stock.
- How many trees will minimize the cost per tree?
 - What will the minimum cost per tree be?

For each function, find the vertex and state whether or not it's a max/min.

21. $y = (x + 3)^2 - 5$

22. $y = -2(x - 2)^2 + 6$

23. $y = -(x + 1)^2 + 9$

24. $y = \frac{1}{2}(x + 4)^2 - 15$