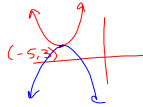


WARM UP

- Find two numbers with a product of -42 and sum of -1 .
 -7 and $+6$
- The graph of a quadratic function has a vertex of $(-5, 3)$. $x = -5$. What is the axis of symmetry?
- Using your graphing calculator, state the vertex and axis of symmetry of $y = -x^2 + 6x - 9$. $(3, 0)$ $x = 3$



- Write a quadratic and linear model for the data, using your calculator. Which model is a better fit? Why?

Data for #4

x	y
35	96
45	140
50	165
60	221

Oct 19-12:03 PM

PAIRED ACTIVITY

- Each student needs to write a quadratic function using small values of a, b, and c (between -3 and 3, remember $a \neq 0$.)
- Then create a table listing three pairs of corresponding x- and y- values for the function. (use x values between -5 and 5, not equal to 0).
- Exchange only your table with a partner.
- Find a quadratic model for the set of values in the table using a system of equations. Check your answer with your partner's equation.

Oct 19-12:03 PM

5.2 Properties of Parabolas

$$f(x) = ax^2 + bx + c$$

- Axis of Symmetry: $x = \frac{-b}{2a}$

- Vertex: $\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

plug in the
x-value +
calculate
the y-value.

Oct 19-12:03 PM

Calculator Problem

4) A ball is thrown into the air with an initial upward velocity of 48 ft/s. Its height h in feet after t seconds is given by the function

$$h(t) = -16t^2 + 48t + 4.$$

- Label the x and y-axis.
- In how many seconds will the ball reach its maximum height?
- What is maximum height?

Oct 20-1:03 PM

HOMEWORK

HW 5.2 p. 248 #1-17 odd, 23-29 odd
37-39 all, and #54 (calculator)

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Graph each function.

1. $y = -x^2 + 1$	2. $y = -x^2 - 1$	3. $y = 2x^2 + 4$
4. $y = 3x^2 - 6$	5. $y = -\frac{1}{3}x^2 - 1$	6. $y = -5x^2 + 12$
7. $y = \frac{1}{2}x^2 + 3$	8. $y = \frac{1}{4}x^2 - 3$	9. $y = -2x^2 + \frac{3}{4}$

Graph each function. Label the vertex and the axis of symmetry.

10. $y = x^2 + 2x + 1$	11. $y = -x^2 + 2x + 1$
12. $y = x^2 + 4x + 1$	13. $y = x^2 + 6x + 9$
14. $y = -x^2 - 3x + 6$	15. $y = 2x^2 + 4x$
16. $y = 4x^2 - 12x + 9$	17. $y = -6x^2 - 12x - 1$

54. A rock club's profit from booking local bands depends on the ticket price. Using past receipts, the owners find that the profit p can be modeled by the function $p = -15r^2 + 600r + 50$, where r represents the ticket price in dollars.

- a. What price yields the maximum profit?
- b. What is the maximum profit?
- c. **Open-Ended** What price would you pay to see your favorite local band? How much profit would the club owner make using that ticket price?

Oct 4-10:50 AM

Graph each function. If $a > 0$ find the minimum value. If $a < 0$ find the maximum value.

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

23. $y = 3x^2 - 4x - 2$

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

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

26. $y = -x^2 - x + 6$

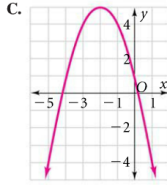
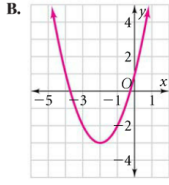
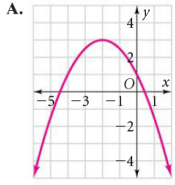
27. $y = 2x^2 + 5$

Match each function with its graph.

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

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

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



Oct 1-8:59 AM