

Name: _____

Date: _____

1.7 Solve Linear-Quadratic Systems

BLM 1-9

- Determine the coordinates of the points of intersection of each linear-quadratic system algebraically.
 - $y = -4x + 5$ and $y = 3x^2 + 5x - 25$
 - $y = 3x - 4$ and $y = -4x^2 - 21x + 24$
- Determine if each given quadratic function will intersect the given linear function once, twice, or not at all.
 - $y = 2x + 8$ and $y = x^2 - 2x - 4$
 - $y = 4x + 7$ and $y = -3x^2 + 9x + 1$
- Determine the value of the y -intercept for the line with a slope of 3 that intersects each quadratic function at just one point.
 - $y = \frac{1}{2}x^2 + 5x - 5$
 - $y = -3x^2 + 2$
- Use Technology** Explain how you can check your solutions to question 2 using a graphing calculator. Use this method to check each solution to question 3.
- A company that is about to start operations expects that the cost, C , in thousands of dollars, to produce x items per day will be given by the function $C(x) = 5x^2 + 800x$. The company also expects that the revenue function for x items per day will be given by $R(x) = 1000x + 200$, where R is revenue, in thousands of dollars. After how many items produced per day can the company expect to break even? (Hint: The break-even point is where a company's cost and revenue are the same.)
- For what value(s) of k in $y = 3x + k$ will the curve $y = -x^2 - 3x + 6$
 - intersect the line at two points
 - intersect the line at one point
 - not intersect the line
- Use Technology** Verify your solutions to question 6 using a graphing calculator.
- What two characteristics must exist for a line to be considered a tangent to a quadratic function?

