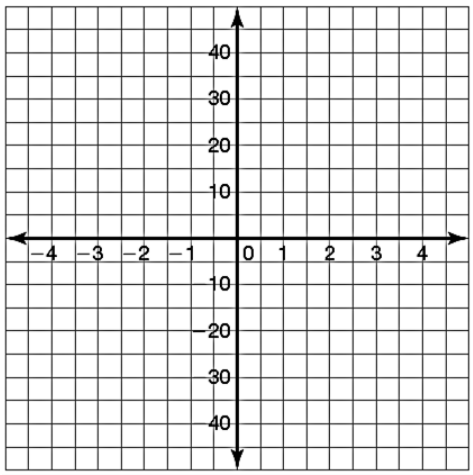
 Name: _____

11.4.D1 – FACTORED FORM OF QUADRATIC FUNCTIONS

Past due on: _____ Period: _____

Use a graphing calculator to graph the function that represents the problem situation. (Use the given axes as a guide for setting the WINDOW.) Identify the absolute maximum, zeros, the domain and range of the function in terms of both the graph and the problem situation, and the intervals of increase and decrease. Round your answers to the nearest hundredth, if necessary. *Refer to the THREE 11.3 examples "Identifying/Determining Domain & Range/ Zeros/Intervals of Increase & Decrease of a Quadratic Function" in the Chapter 11 Summary.*

1. A football is thrown into the air from a height of 6 feet with an initial velocity of 50 feet per second. The function $g(t) = -16t^2 + 50t + 6$ represents the height of the football, $g(t)$, t seconds after it was thrown.



Absolute maximum: _____

Zeros: _____

Domain of graph: _____

Domain of problem: _____

Range of graph: _____

Range of problem: _____

Interval of increase: _____

Interval of decrease: _____

Factor each expression: use the Distributive Property in reverse to write the expression as a product of factors. *Refer to the 11.4 example "Factoring the Greatest Common Factor from an Algebraic Expression" in the Chapter 11 Summary.*

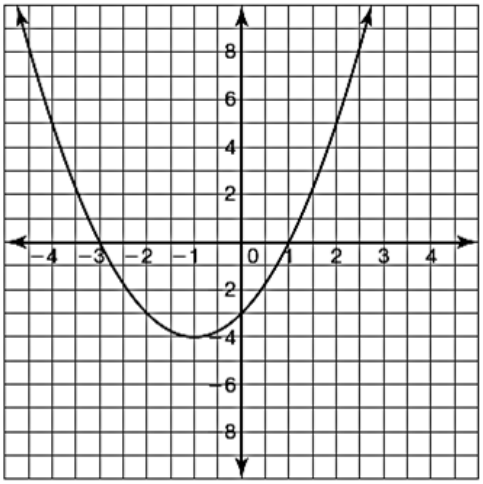
2. $6x - 24$
3. $3x + 36$
4. $10x + 15$
5. $42x - 35$
6. $-x - 9$
7. $-2x + 14$

Determine the x-intercepts of each quadratic function in factored form. *Refer to the 11.4 example "Determining x-Intercepts from Functions in Factored Form" in the Chapter 11 Summary.*

8. $f(x) = (x - 2)(x - 8)$
9. $f(x) = (x + 1)(x - 6)$
10. $f(x) = 3(x + 4)(x - 2)$
11. $f(x) = 0.25(x - 1)(x + 6)$
12. $f(x) = 0.5(x + 15)(x + 5)$
13. $f(x) = -4(x - 1)(x - 9)$

For the function shown, identify the domain, range, maximum or minimum, y-intercept, zeros, and the intervals of increase and decrease. *Refer to the THREE 11.3 examples "Identifying/Determining Domain & Range/ Zeros/Intervals of Increase & Decrease of a Quadratic Function" in the Chapter 11 Summary.*

14. $f(x) = x^2 + 2x - 3$



Domain: _____

Range: _____

Maximum or Minimum: _____

y-intercept: _____

Zeros: _____

Interval of increase: _____

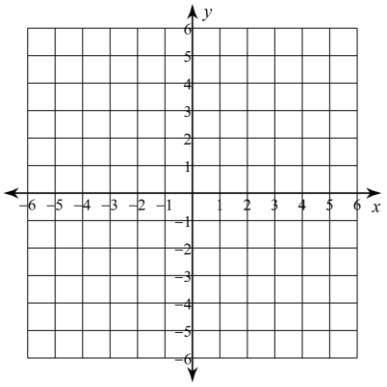
Interval of decrease: _____

Use the zeros to write the factored form of the quadratic function:

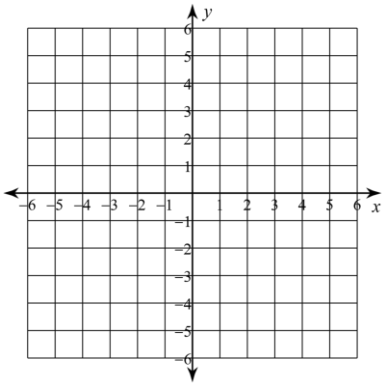
1ST SEMESTER SPIRAL REVIEW – *Refer to the **Linear Functions** section on your 1st semester summary card.*

Graph the line described. Use point-slope form to write the equation of a line that passes through the given point and has the given slope. Then write the equation in slope-intercept form.

15. $(4, 2); m = -\frac{5}{2}$



16. $(-2, -5); m = \frac{3}{4}$



Find the equation of a line that passes through the given points. Write the equation in slope-intercept form.

17. $(1, 4)$ & $(-1, 1)$

18. $(2, 4)$ & $(-3, -6)$