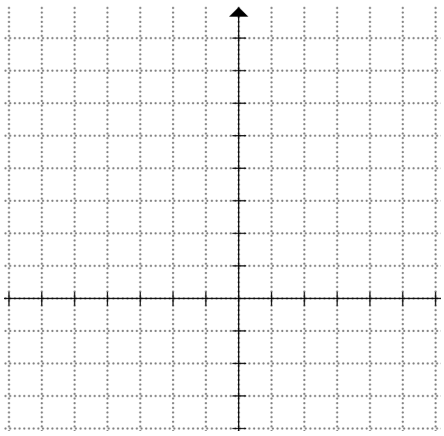
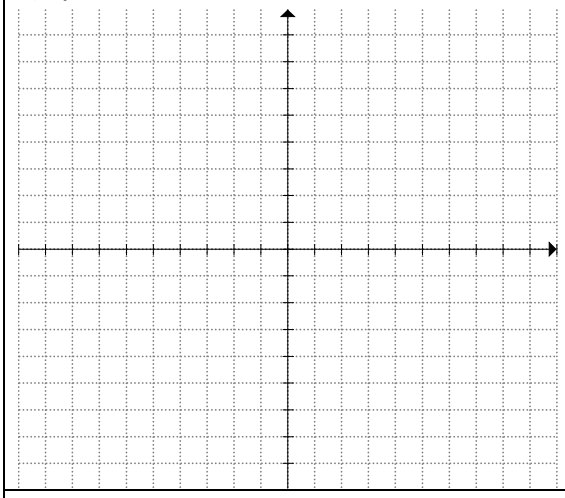
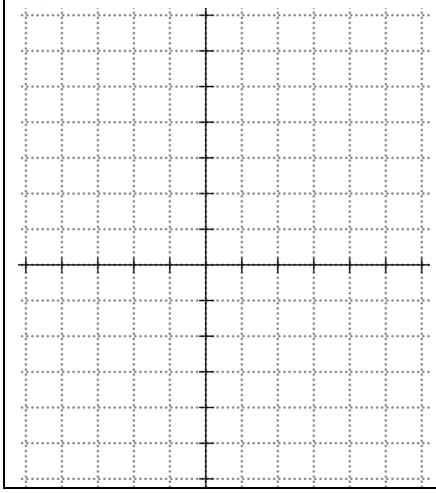
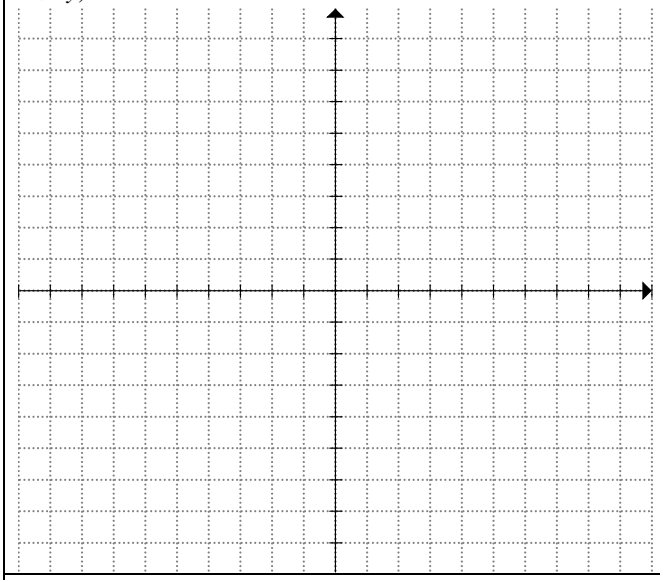
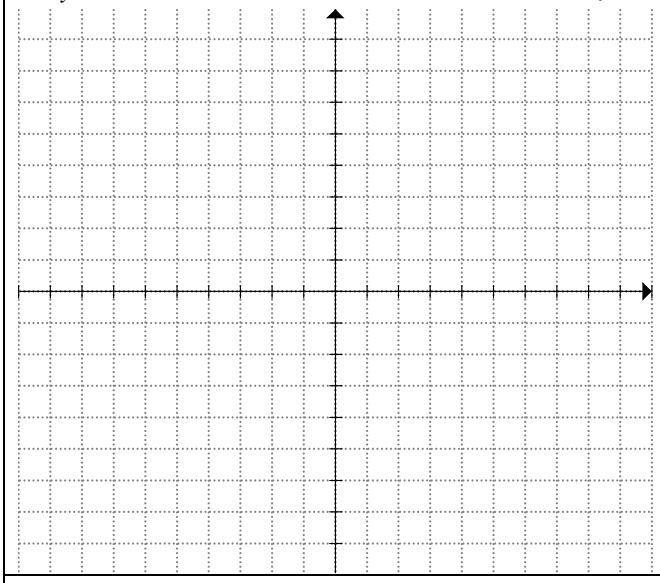
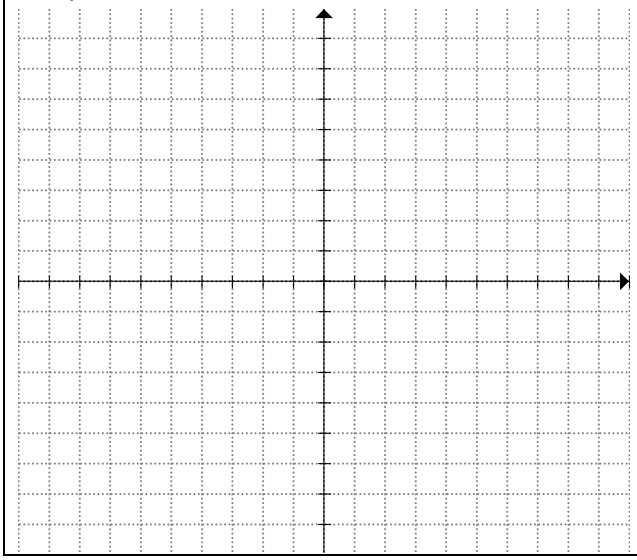
Name:_____ Date:_____

HW Lesson 3: Graphing Quadratic Functions $y = ax^2 + bx + c$ by Factoring

1. Graph each of the following quadratic functions and find i) the Coordinates of the Roots, ii) the Equation of the Axis of Symmetry, iii) Coordinates of the Vertex, iii) Domain and Range

i) $y = x^2 + x - 2$ 	Roots (x:Intercepts) Axis of Symmetry: Vertex: Domain and Range:
ii) $y = x^2 + 2x - 8$ 	Roots (x:Intercepts) Axis of Symmetry: Vertex: Domain and Range:
iii) $y = 3x^2 + 5.5x - 5$ 	Roots (x:Intercepts) Axis of Symmetry: Vertex: Domain and Range:

iv) $y) = 2x^2 + 15x + 18$ 	Roots (x:Intercepts) Axis of Symmetry: Vertex: Domain and Range:
v) $y = 12 + 5x - 3x^2$:skew Increments if necessary 	Roots (x:Intercepts) Axis of Symmetry: Vertex: Domain and Range:
vi) $y = -3x^2 + 14x + 5$ 	Roots (x:Intercepts) Axis of Symmetry: Vertex: Domain and Range:

2. Determine the vertex of the parabola $y = 3(x-20)(x+22)$

3. A pebble is dropped from a bridge into a river at height "h" meters above. Let "t" be the number of seconds after the release. If $h(t) = 65 - 4.9t^2$, then how high is the pebble after 3 seconds? What is the domain and range of this scenario? When will the pebble hit the ground?

4. A tennis ball is dropped from a balcony. The height of the ball (h) above the ground is given by the formula $h(t) = 78.4 - 4.9t^2$. Where "t" is the number of seconds after release. How high is the balcony from the ground? When will the ball hit the ground?

5. Tom throws a football from the top of his building. The height of the ball is given by the formula: $h(t) = -12t^2 + 7t + 85$, where "h" is the height of the football and "t" is the number of seconds after the throw. What is the domain and range of this scenario? When will the ball be falling to 36m?