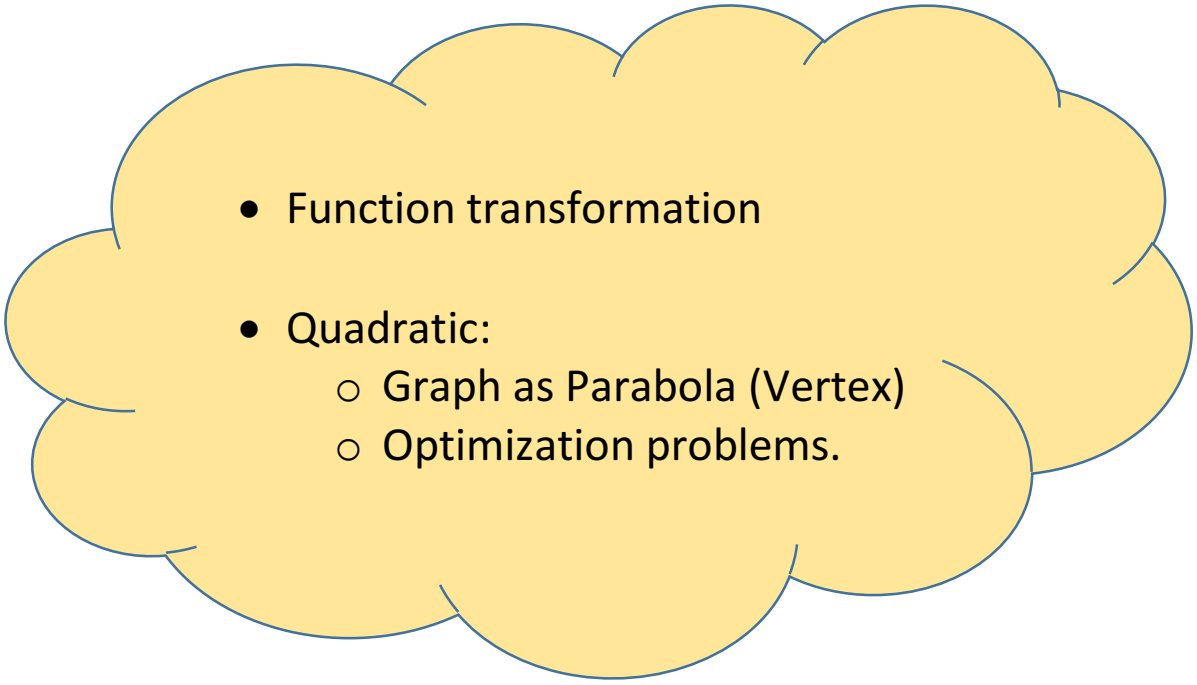
Unit 9: Quadratic functions and transformations

(Chapter 9, page 382)

Transformative ideas in this unit.



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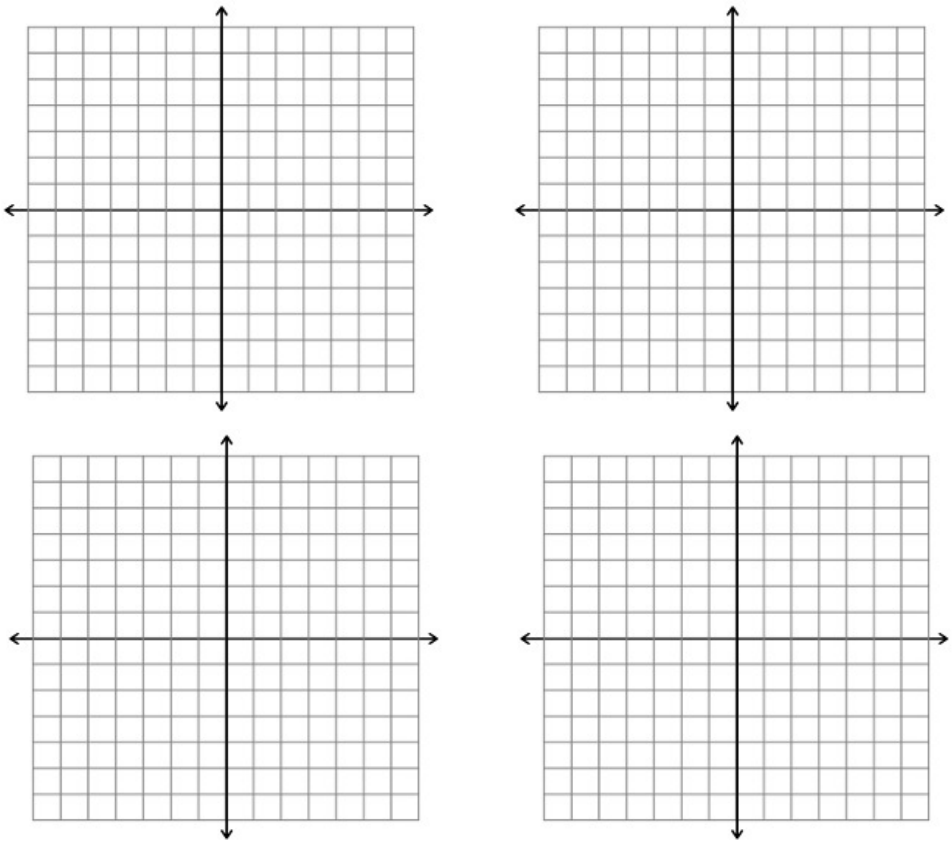
☐	**Graphs of quadratic functions** Sections 9-4, 9-5,9-6 and 9-6	Pages 400 and onward.
☐	Vertex form: $$f(x) = a(x-h)^2 + k$$ -- Vertex is at _____ -- Impact of 'h' on the graph: _____ -- Impact of 'k' on the graph: _____ -- Impact of 'a' on the graph: _____ ---- Examples: 	

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☐	Need to know to transform from and to each of the forms to any other, and their relations to the graph of the function: 1. Standard form $f(x) = ax^2 + bx + c$ 2. Vertex form $f(x) = a(x-h)^2 + k$ 3. Factored form $f(x) = a(x-x_1)(x-x_2)$ Graph: Vertex, X intercepts, Y intercepts.	
☐	Solving problems: Maximum Minimum 'Fence' problems. -- Arrive at a quadratic expression -- Do NOT solve for 'x'. Just find the vertex ➔ That's the minimum/maximum point. ---------- ---- Example:	Page 409

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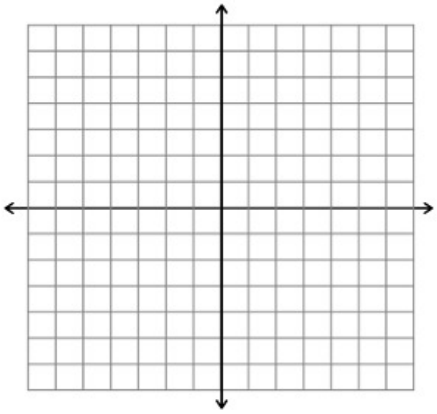
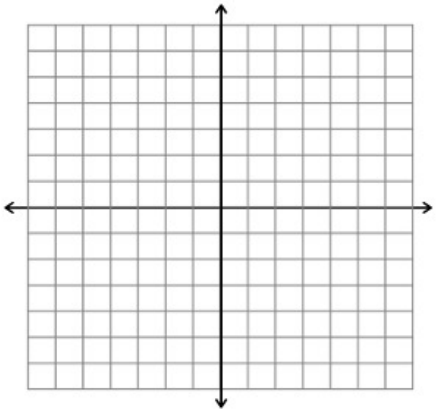
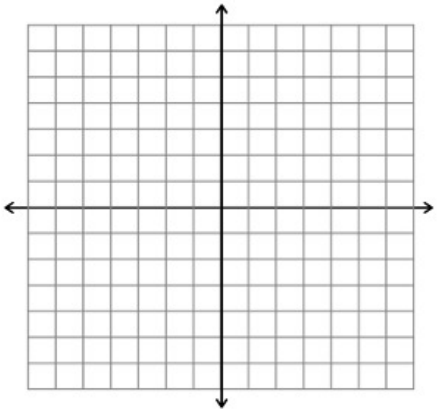
	Transformations	Chapter 9, 9-1 to 9-3, pages 384-399
☐	We had VERY good packet on this. Most of the information is there. Will just list the terms here.	
☐	-- Symmetry (We focused with respect to a vertical line. E.g., x=3)  -- Odd function -- Even function -- Parent functions: Linear (x), Quadratic (x^2), Cubic (x^3), Absolute Value ($\|x\|$) , Radical (sqrt(x)), Rational ($\frac{1}{x}$), Floor ($floor(x)$ or $int(x)$)  	

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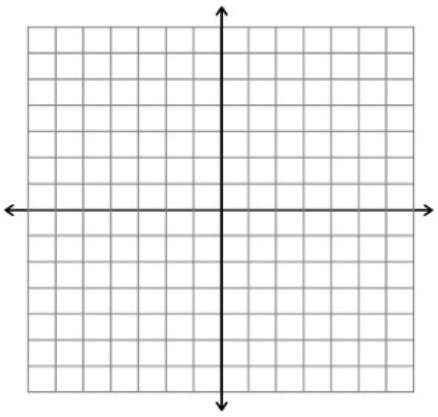
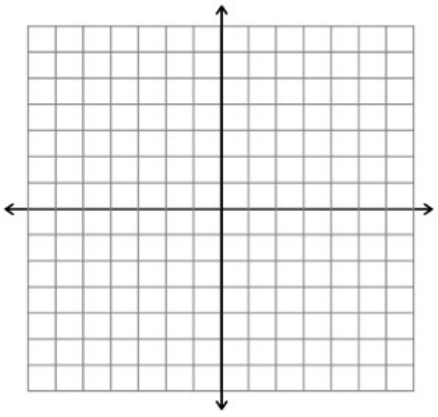
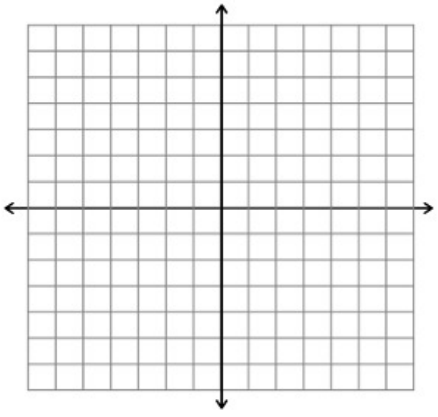
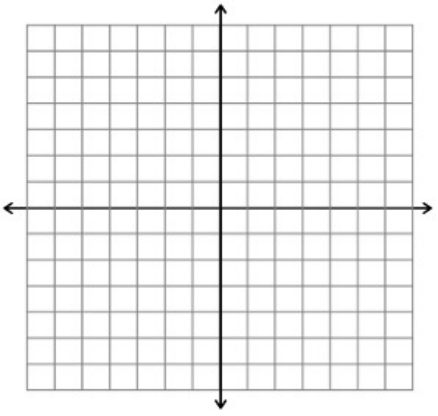
☐	-- Transformations: f(x)+3, f(x)-3, f(x+3), f(x-3), 2f(x), 1/2 f(x), f(2x), f(x/2), f(-x), -f(x) -- (A little bit harder transformation, but worth contemplating: f(3x-1)) -- Shift/translate : f(x-3), f(x) -3 -- Stretch/shrink : 2f(x), f(2x) -- Reflection (f(-x), -f(x)) -- Rigid transformation and non-rigid transformations    

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