

Review: Quadratic Functions

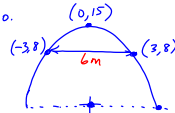
p.202 # 1ab, 2abc, 4, 5, 9, 11, 12 (exact), 13, 14-18, 20-24

Summary:

- radicals, simplification, binomial expansion, rationalization
- algebraically manipulate standard, factored, vertex forms
- determine zeroes from any form, exact (radical) values
- determine equation given (a) zeroes + point, (b) vertex + point, (c) y-int + 2 points
- optimal values from vertex (completing the square) or symmetry (factoring or partial factoring)
- solving quadratic equations for specified values
- solving linear-quadratic systems for points of intersection
- number of zeroes, number of solutions, conditions to produce zero, one, or two solutions
- families of quadratics, similarities and differences
- applications of quadratic functions (e.g., profit-revenue-cost, falling objects, etc.)

Feb 16-12:33 PM

20.



$$f(x) = a(x-0)^2 + 15$$

$$f(x) = ax^2 + 15$$

$$f(3) = 8$$

$$8 = a(3)^2 + 15$$

$$8 = 9a + 15$$

$$-7 = 9a$$

$$a = -\frac{7}{9}$$

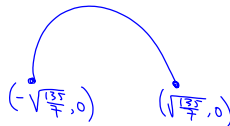
$$f(x) = -\frac{7}{9}x^2 + 15$$

b) set $f(x) = 0$

$$0 = -\frac{7}{9}x^2 + 15$$

$$\frac{7}{9}x^2 = 15$$

$$x^2 = \frac{135}{7}$$

$$x = \pm \sqrt{\frac{135}{7}}$$


$$d = 2\sqrt{\frac{135}{7}}$$

$$= \frac{2\sqrt{15 \cdot 9}}{\sqrt{7}}$$

$$= \frac{6\sqrt{15} \cdot \sqrt{9}}{\sqrt{7}}$$

$$= \frac{6\sqrt{105}}{7}$$

Oct 21-2:36 PM