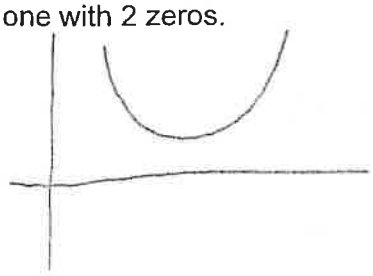
Quiz #2 (7.9-7.12) Review

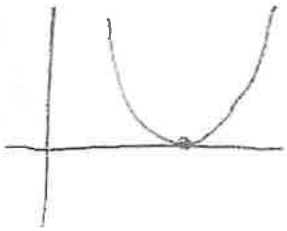
Name: KEY

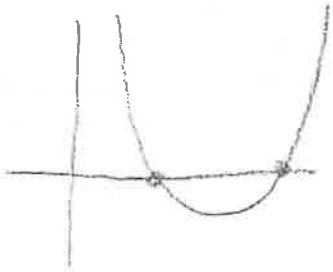
Algebra 1

Hour:

1. Sketch graphs that represent three quadratic functions. One that has no zeros, one with 1 zero and one with 2 zeros.







2. Factor:

a. $x^2 - 2x - 99$

$(x - 11)(x + 9)$

b. $x^2 - 8x + 7$

$(x - 7)(x - 1)$

c. $2x^2 + 9x - 5$

$x^2 + 9x - 10$

$(x - \frac{1}{2})(x + \frac{10}{2})$

$(2x - 1)(x + 5)$

d. $3x^2 + 20x + 12$

$x^2 + 20x + 36$

$(x + \frac{18}{3})(x + \frac{2}{3})$

$(x + 6)(3x + 2)$

3. Solve:

a. $2x^2 - x - 15 = 0$

$x^2 - x - 30$

$(x - \frac{6}{2})(x + \frac{5}{2})$

$(x - 3)(2x + 5) = 0$

$x = 3$

$2x + 5 = 0$

$2x = -5$

$x = -\frac{5}{2}$

b. $x^2 - 11x + 28 = 0$

$(x - 7)(x - 4) = 0$

$x = 7$ $x = 4$

4. Solve by completing the square:

a. $x^2 - 16x + 50 = 2$

$x^2 - 16 + 48 = 0$

$(x - 8)^2 - 64 + 48 = 0$

$(x - 8)^2 - 16 = 0$

$(x - 8)^2 = 16$

$\sqrt{(x - 8)^2} = \pm\sqrt{16}$

b. $x^2 - 18x - 56 = 7$

$x - 8 = 4$

$+8 \quad +8$

$x = 12$

$x - 8 = -4$

$+8 \quad +8$

$x = 4$

$x^2 - 18x - 63 = 0$

$(x - 9)^2 - 81 - 63 = 0$

$(x - 9)^2 - 144 = 0$

$(x - 9)^2 = 144$

$\sqrt{(x - 9)^2} = \pm\sqrt{144}$

$x - 9 = 12$

$+9 \quad +9$

$x = 21$

$x - 9 = -12$

$+9 \quad +9$

$x = -3$

Solve the following for x

5. $6x^2 = 2x$

$-2x \quad -2x$

$6x^2 - 2x = 0$

$2x(3x-1) = 0$

$x = 0$ | $3x - 1 = 0$

$+1 \quad +1$

$\frac{3x}{3} = \frac{1}{3}$

$x = \frac{1}{3}$

6. $5x = 25x^2$

$-5x \quad -5x$

$0 = 25x^2 - 5x$

$0 = 5x(5x-1)$

$x = 0$ | $5x - 1 = 0$

$5x = 1$

$x = \frac{1}{5}$

7. $x^2 + 4 = 5x$

$-5x \quad -5x$

$x^2 - 5x + 4 = 0$

$(x-4)(x-1) = 0$

$x = 4$ | $x = 1$

8. $3x^2 + x = 2$

$-2 \quad -2$

$3x^2 + 1x - 2 = 0$

$x^2 + 1x - 6$

$(x + \frac{3}{3})(x - \frac{2}{3})$

$(x+1)(3x-2) = 0$

$x = -1$ | $3x - 2 = 0$

$3x = 2$

$x = \frac{2}{3}$

Complete the square to rewrite the quadratic function in vertex form:

9. $y = x^2 + 10x + 5$

$y = (x+5)^2 - 25 + 5$

$y = (x+5)^2 - 20$

(vertex = $(-5, -20)$)

10. $y = x^2 + 2x + 8$

$y = (x+1)^2 - 1 + 8$

$y = (x+1)^2 + 7$

(vertex = $(-1, 7)$)