

Key

Name _____ Instructor name or section # _____

1	2	3	4	5	6	7	8	9	10	11	12	13	total
20	8	4	3	6	5	8	6	4	12	5	11	8	100

Given: Standard form for a quadratic: $y = a(x - h)^2 + k$, QF: $ax^2 + bx + c = 0$, then

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Odd (origin symmetry): $f(-x) = -f(x)$, Even (y-axis symmetry): $f(x) = f(-x)$

Show All Work for Full Credit!! For all graphs each ticmark is one unit

1. (4 pts ea) Solve the following equations. Check all solutions.

a.) $2x^4 - 32x^2 = 0$

$$2x^2(x^2 - 16) = 0 \quad x = 0$$

$$x = \pm 4$$

b.) $\sqrt{2x+11} = x+4$

$$2x+11 = x^2 + 8x + 16$$

$$x^2 + 6x + 5 = 0$$

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

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

c.) $7x^{3/2} - 14 = 0$

$$x^{3/2} = \frac{14}{7} = 2$$

$$x = 2^{2/3} = 1.59$$

d.) $(x+5)^2 + 8(x+5) + 15 = 0$

$$m^2 + 8m + 15 = 0$$

$$(m+5)(m+3) = 0$$

$$m = -3 = x+5 \quad x = -10$$

$$m = -5 = x+5 \quad x = -8$$

e.) $f(x) = 2|4x| + 5$ and $f(x) = 21$

$$2|4x| + 5 = 21 \quad 4x = 8$$

$$2|4x| = 16 \quad -4x = 8$$

$$|4x| = 8$$

$$x = 2$$

$$x = -2$$

2. (4 pts ea) Use interval notation to express the solution set.

a.) $3 < x + 8 < 8$

$$-5 < x < 0$$

$$(-5, 0)$$

b.) $-6|1-x| \leq -18$

$$|1-x| \geq 3$$

$$1-x \geq 3 \quad -x \geq 2 \quad x \leq -2$$

$$-(1-x) \geq 3 \quad 1-x \leq -3 \quad -x \leq -4$$

$$(-\infty, -2] \cup [4, \infty)$$