

# QUADRATIC 'EQUALITIES AND RADICAL WORKSHEET

Name: \_\_\_\_\_

Solve by factoring.

a)  $x^3 - 7x + 6 = 0$

b)  $2x^3 + 7x^2 + 2x - 3 = 0$

2. Solve each inequality.

a)  $x^2 + 10x + 21 \geq 0$

c)  $-2x^2 + 9x - 4 > 0$

b)  $x^2 + 11x + 10 < 0$

d)  $-9x^2 + 9x - 2 \leq 0$

3. Write a quadratic inequality that has each solution.

a)  $x > 5$  or  $x < -2$

b)  $-\frac{1}{3} < x < \frac{2}{3}$

4. Solve each inequality.

a)  $|x + 2||x - 3||x - 5| > 0$

c)  $-x^3 + 9x \geq 0$

b)  $-|x + 4||x - 4||x + 1| \leq 0$

d)  $x^3 + 4x^2 - 7x - 10 < 0$

5. Solve each equation.

a)  $\sqrt{x-3} = 4$

c)  $\sqrt{2x+4} = x+3$

b)  $\sqrt{2x-1} = 9$

d)  $\sqrt{4x+5} + 8 = x+1$

6. Solve each equation.

a)  $\sqrt{2x+3} = \sqrt{x-1}$

c)  $\sqrt{2x} + \sqrt{2x+1} = 7$

b)  $\sqrt{1-x} = -3$

d)  $\sqrt{4x+1} - \sqrt{3x-5} - 2 = 0$

17. Solve each inequality.

a)  $\sqrt{2x+9} < 12$

b)  $\sqrt{5-2x} + \sqrt{x-4} > 0$

8. Solve.

a)  $\sqrt{7x+14} > x$

b)  $4x - 4 < \sqrt{5x+6}$

1. Solve by factoring.

a)  $x^3 - 7x + 6 = 0$

$x = 1, 1, -6$   $x = 1, -3, 1/2$

b)  $2x^3 + 7x^2 + 2x - 3 = 0$

$x = 2/3, 1/2, 10$

2. Solve each inequality.

a)  $x^2 + 10x + 21 \geq 0$   $(-\infty, -7] \cup [3, \infty)$

b)  $x^2 + 11x + 10 < 0$   $(-10, -1)$

c)  $-2x^2 + 9x - 4 > 0$   $x \leq -7$  or  $x \geq 3$

d)  $x^2 - 10x + 1 < 0$   $(1, 10)$

e)  $x^2 - 1/2 < 0$   $(-\sqrt{1/2}, \sqrt{1/2})$

f)  $x^2 - 1/3 < 0$   $(-\sqrt{1/3}, \sqrt{1/3})$

g)  $x^2 - 1/4 < 0$   $(-\sqrt{1/4}, \sqrt{1/4})$

3. Write a quadratic inequality that has each solution.

a)  $x > 5$  or  $x < -2$   $(x-5)(x+2) > 0$

b)  $1/3 < x < 2/3$   $(3x+1)(3x-2) < 0$

c)  $x^2 - 3x - 10 > 0$

4. Solve each inequality.

a)  $|x+2| \geq 3$   $(x-5) > 0$

b)  $x^3 + 9x \geq 0$

c)  $-x(x^2-9) \geq 0$

d)  $-|x+4| \geq 4$   $|x+1| \leq 0$

e)  $x^3 + 4x^2 - 7x - 10 < 0$

f)  $-4 \leq x \leq 1$  or  $x \geq 4$

g)  $[-4, -1] \cup [4, \infty)$

h)  $-1, 4, -7, -10$

i)  $-1, 3, -10, 10$

j)  $(x+5)(x-2)(x+1) < 0$

k)  $x < -5$  or  $-1 < x < 2$

l)  $(-\infty, -5) \cup (-1, 2)$

5. Solve each equation.

a)  $\sqrt{x-3} = 4$

b)  $\sqrt{2x+4} = x+3$

6. Solve each equation.

a)  $\sqrt{2x+3} = \sqrt{x-1}$

b)  $\sqrt{2x+4} = x+3$

c)  $\sqrt{2x+4} = x+3$

17. Solve each inequality.

a)  $\sqrt{2x+9} \leq 12$

b)  $\sqrt{2x+9} \leq 12$

c)  $\sqrt{2x+9} \leq 12$

d)  $\sqrt{2x+9} \leq 12$

e)  $\sqrt{2x+9} \leq 12$

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x)  $\sqrt{2x+9} \leq 12$

y)  $\sqrt{2x+9} \leq 12$

z)  $\sqrt{2x+9} \leq 12$

a)  $\sqrt{2x-1} = 9$

b)  $\sqrt{4x+5} + 8 = x+1$

a)  $\sqrt{1-x} = -3$

b)  $\sqrt{4x+1} - \sqrt{3x-5} - 2 = 0$

a)  $\sqrt{5-2x} + \sqrt{x-4} > 0$

b)  $\sqrt{5-2x} + \sqrt{x-4} > 0$

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