

GSE Algebra I  
Homework: Quadratic Formula

Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Period: \_\_\_\_\_

Directions: Find the discriminant and tell the number of solutions. Then solve each of the following equations using the Quadratic Formula.

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

1.  $x^2 + 4x - 2 = 0$

Discriminant: 24  
Nature of Solutions: 2 Irrat'l  
x =

$$\frac{-4 \pm \sqrt{24}}{2(1)}$$

$$\frac{-4 \pm 2\sqrt{6}}{2} = -2 \pm \sqrt{6}$$

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

Discriminant: -7  
Nature of Solutions: no R, imag  
x =

no R solutions

3.  $3x^2 + x = 10$

Discriminant: 121  
Nature of Solutions: 2 R rat'l  
x =  $\frac{5}{3}, -2$

$$3x^2 + x - 10 = 0$$

$$\frac{-1 \pm \sqrt{121}}{2(3)} = \frac{-1 \pm 11}{6}$$

$$\frac{-1 + 11}{6} = \frac{10}{6} = \frac{5}{3} \quad \frac{-1 - 11}{6} = \frac{-12}{6}$$

4.  $3x^2 + 12x + 10 = 0$

Discriminant: 24  
Nature of Solutions: 2 Irrat'l  
x =

$$\frac{-12 \pm \sqrt{24}}{2(3)} = \frac{-12 \pm 2\sqrt{6}}{6}$$

$$= \frac{-6 \pm \sqrt{6}}{3}$$

5.  $5x^2 - 10x + 18 = 13$

Discriminant: 0  
Nature of Solutions: 1 R rat'l  
x =

$$5x^2 - 10x + 5 = 0$$

$$\frac{10 \pm \sqrt{0}}{2(5)} = \frac{10}{10} = 1$$

$$\frac{10 \pm 0}{10}$$

6.  $6x^2 = -4x + 20$

Discriminant: 496  
Nature of Solutions: 2 R irratt'l  
x =

$$6x^2 + 4x - 20 = 0$$

$$(4)^2 - 4(6)(-20)$$

$$\frac{-4 \pm \sqrt{496}}{2(6)} = \frac{-4 \pm 4\sqrt{31}}{12}$$

$$= \frac{-1 \pm \sqrt{31}}{3}$$

$$\frac{-1 + \sqrt{31}}{3} \text{ and } \frac{-1 - \sqrt{31}}{3}$$