

3.12 Practice - Solving Quadratics Using the Quadratic Formula

Date \_\_\_\_\_

Solve each equation with the quadratic formula.

1)  $4k^2 - 20 = k$   $4k^2 - k - 20 = 0$

2)  $2n^2 = 63 - 5n$

$a=4$   
 $b=-1$   
 $c=-20$   
$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(4)(-20)}}{2(4)}$$

$$x = \frac{1 \pm \sqrt{321}}{8}$$

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3)  $3n^2 + 6n = 45$   $3n^2 + 6n - 45 = 0 \Rightarrow n^2 + 2n - 15 = 0$  4)  $8b^2 + 6 = -5b$

$a=1$   
 $b=2$   
 $c=-15$   
$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-15)}}{2(1)}$$

$$x = \frac{-2 \pm \sqrt{64}}{2}$$

$$x = \frac{-2 \pm 8}{2} = \frac{6}{2}, \frac{-10}{2} = \boxed{3, -5}$$

5)  $5a^2 - 90 = -7a$   $5a^2 + 7a - 90 = 0$

6)  $2x^2 - 4x = 3$

$a=5$   
 $b=7$   
 $c=-90$   
$$x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(5)(-90)}}{2(5)}$$

$$x = \frac{-7 \pm \sqrt{849}}{10}$$

$$x = \frac{-7 \pm 29}{10} = \frac{36}{10}, \frac{-50}{10} = \boxed{\frac{18}{5}, -5}$$

7)  $2a^2 - 14 = 0$   $a^2 - 7 = 0$

8)  $10a^2 - 10a = 16$

$a=1$   
 $b=0$   
 $c=-7$   
$$x = \frac{-(-0) \pm \sqrt{(-0)^2 - 4(1)(-7)}}{2(1)}$$

$$x = \frac{\pm \sqrt{28}}{2}$$

$$x = \frac{\pm 2\sqrt{7}}{2} = \boxed{\pm \sqrt{7}}$$

9)  $n^2 - 5n = 50$   $n^2 - 5n - 50 = 0$

10)  $10v^2 = 9v - 6$

$a=1$   
 $b=-5$   
 $c=-50$   
$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(1)(-50)}}{2(1)}$$

$$x = \frac{5 \pm \sqrt{225}}{2}$$

$$x = \frac{5 \pm 15}{2} = \frac{20}{2}, \frac{-10}{2} = \boxed{10, -5}$$

11)  $10m^2 - 5m = -3$   $10m^2 - 5m + 3 = 0$

12)  $4r^2 - 36 = 0$

$a=10$   
 $b=-5$   
 $c=3$   
$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(10)(3)}}{2(10)}$$

$$x = \frac{5 \pm \sqrt{95}}{20}$$

No real

ANSWER