

Review Worksheet for Unit 3B Test

Name \_\_\_\_\_ Date \_\_\_\_\_

Factor

1)  $3x^2 - 12x + x - 4$

$(3x+1)(x-4)$

2)  $x^2 - 49$

$(x-7)(x+7)$

3)  $3x^2 + 6x + 3$

$3(x+1)(x+1)$

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

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

5)  $x^4 - 16$

$(x^2+4)(x-2)(x+2)$

6)  $x^2 + 10x + 24$

$(x+6)(x+4)$

Solve by factoring.

1)  $x^2 - x - 20 = 0$

$x = 5 \quad x = -4$

2)  $6x^2 + 4x = 0$

$x = 0 \quad x = -2/3$

3)  $m^2 - 11m + 19 = -5$

$x = 8 \quad x = 3$

4)  $7x^2 - 14x = -7$

$x = 1$

5)  $4v^3 - 12v^2 - 5v + 15 = 0$

$v = 3 \quad v = \pm \sqrt{\frac{5}{4}}$

or

$v = \pm 1.12$

6)  $6a^2 - 13a + 6 = 0$

$a = 3/2 \quad a = 2/3$

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Solve by taking square roots.

7)  $2n^2 - 72 = 0$

$$n = \pm 6$$

9)  $h^2 = 121$

$$h = \pm 11$$

11)  $k^2 + 8 = 8$

$$k = 0$$

8)  $2r^2 - 32 = 0$

$$r = \pm 4$$

10)  $2x^2 - 2 = 6$

$$x = \pm 2$$

12)  $13 - 8y^2 = -1139$

$$y = \pm 12$$

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Solve by using the quadratic formula.

13)  $k^2 + 5k - 6 = 0$

$$k = 1$$

$$k = -6$$

14)  $3x^2 = 6x - 3$

$$x = 1$$

15)  $4n^2 + 4n - 8 = 1$

$$x = \frac{-1 \pm \sqrt{10}}{2}$$

16)  $2x^2 + 3x - 20 = 0$

$$x = -4$$

$$x = 5/2 \text{ or } 2.5$$

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Find the value of the discriminant and describe the nature of the roots.

17)  $2x^2 - 8x + 8 = 0$

0; 1 Real Root

18)  $x^2 - 5x = -10$

-15; NO Real Roots

19)  $3x^2 + x - 7 = 0$

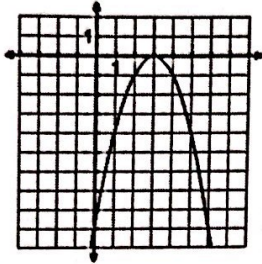
85; 2 Real Roots

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

-12; NO Real Roots

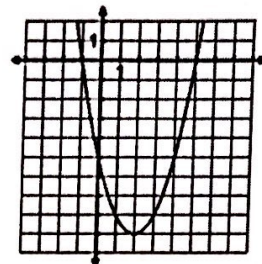
Use the given information to determine the number and nature of the roots.

21)



1 Real Root

22)



2 Real Roots

Solve by completing the square.

23)  $x^2 + 20x + 75 = 0$

$$x = -5$$

$$x = -15$$

24)  $x^2 - 14x - 32 = 0$

$$x = 16$$

$$x = -2$$

25)  $x^2 - 8x = 30$

$$x = \pm \sqrt{46} + 4$$

26)  $x^2 + 6x + 9 = 100$

$$x = -13$$

$$x = 7$$