

Name

Key

Test Date: \_\_\_\_\_

**Unit 3 Study Self-Assessment****Part 1: Factor the polynomial WITHOUT using your Flipbook/Notes**

1.  $r^3 + 27$

$$\sqrt[3]{r^3} = r$$

$$\sqrt[3]{27} = 3$$

$$(r+3)(r^2-3r+9)$$

2.  $m^2 - 11m + 18$

$$\begin{array}{r} 18 \\ -9 \quad -2 \\ \hline -11 \end{array}$$

$$(m-9)(m-2)$$

3.  $27r^2 - 12t^2$

$$3(9r^2 - 4t^2)$$

4.  $49a^2 - 42ab + 9b^2$

$$\sqrt{49a^2} = 7a$$

$$\sqrt{9b^2} = 3b$$

$$(7a-3b)^2$$

5.  $x^4 - 16x^2$

$$\sqrt{x^4} = x^2 \quad (x^2+4x)(x^2-4x)$$

$$\sqrt{16x^2} = 4x$$

6.  $(2x^2 - 3xz) - (2xy + 3yz)$

$$x(2x-3z) - y(2x-3z)$$

$$(x-y)(2x-3z)$$

**Part 2: Solve the quadratic equation WITHOUT using your Flipbook/Notes**

7. by factoring

$$12x^2 - 5x = 2$$

$$12x^2 - 5x - 2 = 0$$

$$(3x-2)(4x+1)$$

$$\begin{array}{r} -24 \\ -9 \quad 3 \\ \hline -5 \end{array}$$

$$\begin{array}{l} \frac{-9}{12} = \frac{-4}{6} = \frac{-2}{3} \\ \frac{3}{12} = \frac{1}{4} \end{array}$$

8. by completing the square

$$x^2 - 20x = 4$$

$$\sqrt{x^2} = x$$

$$\sqrt{100} = 10$$

$$x^2 - 20x + 100 = 104$$

$$\sqrt{(x-10)^2} = \sqrt{104}$$

$$x-10 = \pm\sqrt{104}$$

$$x = 10 \pm \sqrt{104} = x = 10 \pm 2\sqrt{26}$$

9. by using the quadratic formula

$$6 = 3t^2 + 2t$$

$$0 = 3t^2 + 2t - 6$$

$$a=3$$

$$b=2$$

$$c=-6$$

$$t = \frac{-2 \pm \sqrt{4 - 4(3)(-6)}}{2(3)}$$

$$t = \frac{-2 \pm \sqrt{4 + 72}}{6}$$

$$t = \frac{-2 \pm \sqrt{76}}{6}$$

$$t = \frac{-2 \pm 2\sqrt{19}}{6} = \frac{-1 \pm \sqrt{19}}{3}$$

$$\begin{array}{r} 76 \\ 2 \overline{) 76} \\ \underline{38} \\ 38 \\ \underline{38} \\ 0 \end{array}$$

$$\frac{-1 \pm \sqrt{19}}{3}$$