

## Quiz #7.

1.  $a^2 - b^2 = (a-b)(a+b)$

2.  $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$

3.  $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

4.  $a^2 + 2ab + b^2 = (a+b)^2$

5.  $a^2 - 2ab + b^2 = (a-b)^2$

6.  $8x^4y + 10x^2y^3 + 6x^2y$   
 $2x^2y(4x^2 + 5y^2 + 3)$

7.  $x^2 - 4x - 12$

$(x-6)(x+2)$

$$8. \underbrace{x^3 - x^2 + 3x - 3}$$

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

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

$$9. 4x^2 - 49$$

$$(2x)^2 - 7^2$$

$$(2x-7)(2x+7)$$

$$10. 27y^3 - 64 = (3y)^3 - 4^3$$

$$(3y-4)(\overset{(3y)^2}{9y^2} + \overset{(3y)(4)}{12y} + \overset{(4)^2}{16})$$

Bonus  $3x^5 - 3x^3 + 24x^2 - 24$

$$3(x^5 - x^3 + 8x^2 - 8)$$

$$3[x^3(x^2 - 1) + 8(x^2 - 1)]$$

$$3(x^2 - 1)(x^3 + 8)$$

$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

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

Chapter Review

$$9. \frac{3 \times 10^{-3}}{15 \times 10^2} = \frac{1}{5 \cdot 10^{2-(-3)}} = \frac{1}{5 \cdot 10^5}$$

$$= \frac{1}{5} \cdot 10^{-5} = 0.2 \times 10^{-5}$$

$$= 2 \times 10^{-6}$$

Solve.  
47.  $X^3 - X^2 - 6X = 0$

$$X(X^2 - X - 6) = 0$$

$$X(X-3)(X+2) = 0$$

$$\begin{array}{ccc} X = 0 & X-3 = 0 & X+2 = 0 \\ & X = 3 & X = -2 \end{array}$$

35.  $X^2Y^2 - 9$

$$(XY)^2 - 3^2$$

$$(XY-3)(XY+3)$$

$$\underline{a^2 - b^2 = (a-b)(a+b)}$$

$$10. P(x) = 2x^3 - x + 7; \quad P(-2)$$

$$P(-2) = 2(-2)^3 - (-2) + 7$$

$$= 2(-8) + 2 + 7$$

$$= -16 + 9 = \boxed{-7}$$

$$\begin{array}{r|rrrr} -2 & 2 & 0 & -1 & 7 \\ & & -4 & 8 & -14 \\ \hline & 2 & -4 & 7 & \boxed{-7} \end{array}$$

$$23. (x-4)(3x+2)(2x-3)$$

$$(3x^2 + 2x - 12x - 8)(2x - 3)$$

$$(3x^2 - 10x - 8)(2x - 3)$$

$$6x^3 - 20x^2 - 16x - 9x^2 + 30x + 24$$

$$6x^3 - 29x^2 + 14x + 24$$