

- D 1.  $a^2 - b^2$
- N 2.  $a^3 - b^3$
- G 3.  $a^3 + b^3$
- I 4.  $a^2 + 2ab + b^2$
- A 5.  $a^2 - 2ab + b^2$
- L 6.  $x^m x^n$
- P 7.  $(x^m)^n$
- K 8.  $\frac{x^m}{x^n}$
- M 9.  $x^0$
- F 10.  $x^{-n}$

- A.  $(a - b)^2$
- B.  $(a - b)(a^2 + 2ab + b^2)$
- C.  $x^{n-m}$
- D.  $(a - b)(a + b)$
- E. 1
- F.  $\frac{1}{x^n}$
- G.  $(a + b)(a^2 - ab + b^2)$
- H. 0
- I.  $(a + b)^2$
- J.  $(a + b)(a^2 - 2ab + b^2)$
- K.  $x^{m-n}$
- L.  $x^{m+n}$
- M.  $(a - b)^3$
- N.  $(a - b)(a^2 + ab + b^2)$
- O.  $(a + b)^3$
- P.  $x^{mn}$

5.6

$$91. y^5 + 6y^4 - 55y^3$$

$$y^3(y^2 + 6y - 55)$$

$$y^3(y + 11)(y - 5)$$

5.7

 $x, x+1$ 

61.

$$x^2 + (x+1)^2 = 145$$

$$x^2 + x^2 + 2x + 1 = 145$$

$$2x^2 + 2x - 144 = 0$$

$$\cancel{2(x^2 + x - 72) = 0}$$

$$x^2 + x - 72 = 0$$

$$(x+9)(x-8) = 0$$

$$x+9=0 \quad x-8=0$$

$$\cancel{x=-9} \quad x=8$$

$$\begin{aligned} &(x+1)^2 \\ &(x+1)(x+1) \\ &x^2 + x + x + 1 \\ &x^2 + 2x + 1 \end{aligned}$$

849

5.7

~~$a = 10 \text{ m/s}^2$~~

69.

$$v^2 = 20s$$

$$v = ? \text{ when } s = 500 \text{ m}$$

$$v^2 = 20(500)$$

$$v^2 = 10,000$$

$$v^2 - 10,000 = 0$$

$$(v-100)(v+100) = 0$$

$$v-100=0, \quad v+100=0$$

$$v = 100 \text{ m/s}, \quad \cancel{v = -100}$$

Old Test #3

$$11. \begin{cases} 3x+y=7 \\ x+2y=4 \end{cases} \rightarrow y = -3x+7$$

$$x+2(-3x+7)=4$$

$$y = -3(2)+7$$

$$= -6+7$$

$$x-6x+14=4$$

$$-5x = -10$$

$$y = 1$$

$$(2, 1)$$

$$x = 2$$

12. Simplify.

$$\left( \frac{x^{-3} y^{-4}}{x^{-2} y} \right)^{-2} = \left( \frac{1}{x^{-2-(-3)} y^{1-(-4)}} \right)^{-2}$$

$$= \left( \frac{1}{x^1 y^5} \right)^{-2} = \frac{1}{x^{-2} y^{-10}} = (x^2 y^{10})$$

13. write in scientific notation

$$9,800,000,000 = 9.8 \times 10^9$$

$$14. f(x) = -7x^5 + 12x^4 - 5x^2 + 3x - 9$$

lead term:  $-7x^5$

leading coefficient:  $-7$

degree:  $5$

constant term:  $-9$

$$15. P(x) = -3x^2 - 2x + 8$$

$$P(-1) = -3(-1)^2 - 2(-1) + 8$$

$$= -3 + 2 + 8$$

$$= 7$$

$$\begin{array}{r|rrrr} -1 & -3 & -2 & 8 & \\ & & 3 & -1 & \\ \hline & -3 & 1 & 7 & \end{array}$$

$$P(-1) = \boxed{7}$$

16. Multiply & Simplify.

$$(2b^2 - 3)(3b^2 - 3b + 6)$$

$$6b^4 - 6b^3 + 12b^2 - 9b^2 + 9b - 18$$

$$(6b^4 - 6b^3 + 3b^2 + 9b - 18)$$

17. divide.

$$(x^3 - 6x^2 + 11x - 6) \div (x - 3)$$

$$\begin{array}{r|rrrr} 3 & 1 & -6 & 11 & -6 \\ & & 3 & -9 & 6 \\ \hline & 1 & -3 & 2 & 0 \end{array}$$

Quotient:  $x^2 - 3x + 2$

Remainder:  $0$

$$\begin{array}{r} x^2 - 3x + 2 \\ x-3 \overline{) x^3 - 6x^2 + 11x - 6} \\ \underline{-(x^3 - 3x^2)} \phantom{- 6} \\ -3x^2 + 11x - 6 \\ \underline{-(-3x^2 + 9x)} \phantom{- 6} \\ 2x - 6 \\ \underline{2x - 6} \\ 0 \end{array}$$

18. factor completely.

$$6x^4 - 10x^3 - 4x^2$$

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

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

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

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

19. factor.

$$3b^5 - 24b^2$$

$$3b^2(b^3 - 8)$$

$$3b^2(b-2)(b^2 + 2b + 4)$$

20. Solve for  $x$ .

$$(x+5)(x-7) = -20$$

$$x^2 - 7x + 5x - 35 + 20 = 0$$

$$x^2 - 2x - 15 = 0$$

$$(x-5)(x+3) = 0$$

$$x-5=0 \quad x+3=0$$

$$x=5, -3$$

HW:  
Ch 5 Review  
pp 320-322