

Practice W/Sheet

KEY

a) $(x+2)(x+5)$
 $= x^2 + 7x + 10$

b) $(2x+2)(x-5)$
 $= 2x^2 - 8x - 10$

c) $(x-3)(x^2+3a-1)$
 $= x^3 + 3ax - x$
 $\quad - 3x^2 - 9a + 3$
 $= \underline{\underline{-3x^2 - 9a + 3}}$

d) $4(5x-1)3(2x+3)$
 $= (20x-4)(6x+9)$
 $= 120x^2 + 180x - 24x - 36$
 $= 120x^2 + 156x - 36$

e) $\frac{3x-1}{x-4} - \frac{(2x-1)(x+3)}{2x^2+5x-3}$
 $= \frac{3x-x+4}{x-4} - \frac{2x^2+5x-3}{2x^2+5x-3}$
 $= \frac{2x+4}{x-4} - 1$
 $= \frac{2x+4 - (x-4)}{x-4}$
 $= \frac{-2x^2 - 3x + 7}{x-4}$

2. a) $2x-6$
 $= 2(x-3)$

b) $\underline{\underline{2x-5}}$
Done

c) $2x+2$
 $= 2(x+1)$

d) $30x^2y^2 + 50x^3y^2$
 $= 10x^2y^2(3+5x)$

e) $6r^2 + 4r^2t^5 - 2rt^3$
 $= 2r(3r + 2r^2t^5 - t^3)$

3. a) $x^2 - 13x + 12$
 $= \underline{\underline{(x-12)(x-1)}}$

b) $x^2 + 13x + 12$
 $= \underline{\underline{(x+12)(x+1)}}$

c) $x^2 - 13x - 12$
DNE

d) $x^4 - 13x^3 + 12x^2$
 $= x^2(x^2 - 13x + 12)$
 $= \underline{\underline{x^2(x-12)(x-1)}}$

$$e) 8x^2 + x - 9$$

$$\begin{array}{l} \cancel{(4x/3)(2x/3)} \\ \cancel{(8x+9)(x-1)} \end{array}$$

$$\begin{array}{r} -12x \\ 1+ \\ -8,9 \end{array}$$

$$8x^2 - 8x + 9x - 9$$

$$8x(x-1) + 9(x-1)$$

$$= (8x+9)(x-1)$$

$$f) 60x^5 - 70x^4 - 30x^3$$

$$= 10x^3(6x^2 - 7x - 3)$$

$$= 10x^3(6x^2 - 9x + 2x - 3)$$

$$= 10x^3[3x(2x-3) + 1(2x-3)]$$

$$= 10x^3(3x+1)(2x-3)$$

$$g) 60x^5y^4 - 70x^4y^4 - 30x^3y^4$$

$$= 10x^3y^4(6x^2 - 7x - 3)$$

$$= 10x^3y^4(3x+1)(2x-3)$$

$$h) 60x^5y - 70x^4y - 30x^3y^2$$

$$\rightarrow 10x^3(6x^2y - 7xy - 3y^2)$$

$$\downarrow$$

$$10x^3(6x^2 - 7xy - 3y^2)$$

$$10x^3(3x+y)(2x-3y)$$

$$4. a) x^2 - 1 = (x-1)(x+1)$$

$$b) x^4 - 1 = (x^2+1)(x^2-1) = (x^2+1)(x-1)(x+1)$$

$$c) 6x^4 - 6 = 6(x^4 - 1) = 6(x^2+1)(x-1)(x+1)$$

$$d) a^6 - d^{10} = (a^3+d^5)(a^3-d^5)$$

check...

$$e) 20 - 45x^2 = 5(4 - 9x^2) = 5(2+3x)(2-3x)$$

$$f) a^2 + 14a + 49 = (a+7)^2$$

$$g) a^2 - 14a + 49 = (a-7)^2$$

$$h) a^2 + 14a - 49 \rightarrow (a+7)(a-7)$$

-DNE-

$$5. A = l \cdot w \rightarrow A = \frac{2x+3}{l} \frac{x+1}{w}$$

$$\begin{array}{l} \text{length} = 2x+3 \\ x=3 \rightarrow 2(3)+3 = 9 \text{ m} \\ \text{width} = x+1 \\ 3+1 = 4 \text{ m} \end{array}$$