

More Decomposition

From back of outline.

4c) $14x^2 - 13x + 3$ $\otimes 42$
 $\oplus -13$

$$= \underbrace{14x^2 - 7x}_{7x} - \underbrace{6x + 3}_{-3}$$

$$= \underline{7x(2x-1)} - \underline{3(2x-1)}$$

$$= (2x-1)(7x-3)$$

$$\begin{array}{l} 1, 42 \\ 2, 21 \\ 3, 14 \\ \textcircled{-6, -7} \end{array}$$

5a) $3x^2 + 7x - 6$ $\otimes -18$
 $\oplus +7$

$$= \underbrace{3x^2 + 9x}_{3x} - \underbrace{2x - 6}_{-2}$$

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

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

$$\begin{array}{l} 1, 18 \\ -2, 9 \end{array}$$

5c) $6x^2 + 7x - 20$ $\otimes -120$
 $\oplus 7$

$$= \underbrace{6x^2 - 8x}_{2x} + \underbrace{15x - 20}_{+5}$$

$$= 2x(3x-4) + 5(3x-4)$$

$$= (3x-4)(2x+5)$$

$$\begin{array}{l} 1, 120 \\ 2, 60 \\ 3, 40 \\ 4, 30 \\ 5, 24 \\ 6, 20 \\ \textcircled{-8, 15} = 7 \end{array}$$

You do # 4e 5e

$$6a) \quad 2m^2 - m - 21 \quad \begin{matrix} \otimes -42 \\ \oplus -1 \end{matrix}$$

$$= \underline{2m^2 + 6m} - \underline{7m - 21}$$

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

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

$$\begin{matrix} 1, 42 \\ 2, 21 \\ 3, 14 \\ \underline{6, -7} \end{matrix}$$

$$6c) \quad 10x^2 - 19x - 15 \quad \begin{matrix} \otimes -150 \\ \oplus -19 \end{matrix}$$

$$= \underline{10x^2 - 25x} + \underline{6x - 15}$$

$$= 5x(2x-5) + 3(2x-5)$$

$$= (2x-5)(5x+3)$$

$$\begin{matrix} 1, 150 \\ 2, 75 \\ 3, 50 \\ 5, 30 \\ \underline{6, -25} \\ 10, 15 \end{matrix}$$

$$7. a) \quad 9x^2y^2 - 48x^2y + 48x^2$$

$$= 3x^2(3y^2 - 16y + 16) \quad \begin{matrix} \otimes 48 \\ \oplus -16 \end{matrix}$$

$$= 3x^2(\underline{3y^2 - 12y} - \underline{4y + 16})$$

$$= 3x^2(\underline{3y(y-4)} - \underline{4(y-4)})$$

$$= 3x^2(y-4)(3y-4)$$

- Step one to all factoring:
→ Is there a GCF?

$$\begin{matrix} 1, 48 \\ 2, 24 \\ 3, 16 \\ \underline{4, 12} \end{matrix}$$

$$7c) 20x^2y^3 - 85xy^3 - 75y^3$$

$$= 5y^3(4x^2 - 17x - 15)$$

$$\otimes -60$$

$$1, 60$$

$$2, 30$$

$$\oplus -17$$

$$\textcircled{3, -20}$$

$$= 5y^3\left(\underbrace{4x^2 - 20x}_{4x} + \underbrace{3x - 15}_{+3}\right)$$

$$= 5y^3(4x(\underline{x-5}) + 3(\underline{x-5}))$$

$$= 5y^3(x-5)(4x+3)$$

You do 6e, 7e

$$8. a) 9k^2 - 24k + 16$$

$$\otimes 144$$

$$\oplus -24 \quad -12, 12$$

$$= (3k-4)^2$$

$$8 c) 12x^2 - 5xy - 2y^2$$

$$\otimes -24$$

$$1, 24$$

$$\oplus -5$$

$$2, 12$$

$$\textcircled{3, -8}$$

$$= \underbrace{12x^2 + 3xy}_{3x} \underbrace{-8xy - 2y^2}_{-2y}$$

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

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

Homework # 4-8 bdf of each