

## More Decomposition

3. a)  $2m^2 - 11m + 12$   $\begin{matrix} \otimes & 24 \\ \oplus & -11 \end{matrix}$

$$\begin{array}{r} 1, 24 \\ 2, 12 \\ \hline -3, -8 \\ \hline 4, 6 \end{array}$$

$$= \underbrace{2m^2 - 8m}_{2m} - \underbrace{3m + 12}_{-3}$$

$$= 2m(m-4) - 3(m-4)$$

$$= (m-4)(2m-3)$$

3 c)  $3x^2 - 14x + 8$   $\begin{matrix} \otimes & 24 \\ \oplus & -14 \end{matrix}$

$$\begin{array}{r} 1, 24 \\ -2, -12 \\ \hline 3, 8 \\ \hline 4, 6 \end{array}$$

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

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

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

4 c)  $14x^2 - 13x + 3$   $\begin{matrix} \otimes & 42 \\ \oplus & -13 \end{matrix}$

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

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

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

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

$$5a) \quad 3x^2 + 7x - 6 \quad \begin{matrix} \otimes -18 \\ \oplus 7 \end{matrix}$$

$$\begin{matrix} -1, 18 \\ -2, 9 \\ -3, 6 \end{matrix}$$

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

You do: 3e  
4ae

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

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

$$5c) \quad 6x^2 + 7x - 20 \quad \begin{matrix} \otimes -120 \\ \oplus 7 \end{matrix}$$

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

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

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

$$1, 120$$

$$2, 60$$

$$3, 40$$

$$4, 30$$

$$5, 24$$

$$6, 20$$

$$-8, 15$$

$$10, 12$$

$$1, 84$$

$$2, 42$$

$$3, 28$$

$$-4, 21$$

$$5e) \quad 6x^2 + 17x - 14 \quad \begin{matrix} \otimes -84 \\ \oplus 17 \end{matrix}$$

$$= \underbrace{6x^2 - 4x}_{2x} + \underbrace{21x - 14}_{+7}$$

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

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

$$6a) \quad 2m^2 - m - 21 \quad \begin{matrix} \otimes -42 \\ \oplus -1 \end{matrix} \quad 6, -7$$

$$= \frac{2m^2 - 7m}{m} + \frac{6m - 21}{+3}$$

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

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

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

$$= \frac{10x^2 - 25x}{5x} + \frac{6x - 15}{+3}$$

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

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

1, 150  
2, 75  
3, 50  
5, 30

6, -25

off Book:

$$33x^2 + 208x - 1536$$

$$= \frac{33x^2 - 144x}{3x} + \frac{352x - 1536}{+32}$$

$$= 3x(11x - 48) + 32(11x - 48)$$

$$= (11x - 48)(3x + 32)$$

$$\otimes -50688$$

$$\oplus 208$$

1, 50688  
2, 25344  
3, 16896  
4, 12672  
6, 8448  
8, 6336  
9, 5632  
11, 4608  
12, 4224

Homework:

4 bdf, 5 bdf, 6 bdf

24, 2112

32, 1584

66, 768

-144, 352