

1)  $x^2 + x - 12$  <sup>sdiffn</sup>

$(x - 3)(x + 4)$

$$\begin{array}{r} 12 \\ \hline 1 \quad 12 \\ 2 \quad 6 \\ \hline -3 \quad +4 \end{array}$$

5)  $\frac{50x^2y^3}{10xy^3} + \frac{20xy^2}{10xy^3} - \frac{10xy^4}{10xy^3}$

$10xy^3[5x^2 + 2y^2 - y]$

2)  $\frac{24y + 6}{6}$

$6[4y + 1]$

6)  $x^2 - 81$

$(x + 9)(x - 9)$

3)  $\frac{k^2 - 7k}{k} + \frac{2km - 14m}{2m}$

$\frac{k(k - 7)}{k - 7} + \frac{2m(k - 7)}{k - 7}$

$(k - 7)(k + 2m)$

7)  $6n^2 - 11n - 7$

$\frac{6n^2 + 3n}{3n} - \frac{14n - 7}{-7}$

$\frac{3n(2n + 1)}{2n + 1} - \frac{7(2n + 1)}{2n + 1}$

$(2n + 1)(3n - 7)$

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

4)  $5x^2 - 14x + 8$  <sup>sum</sup>

$\frac{5x^2 - 4x}{x} - \frac{10x + 8}{-2}$   
 $\frac{x(5x - 4)}{5x - 4} - \frac{2(5x - 4)}{5x - 4}$

$(5x - 4)(x - 2)$

$$\begin{array}{r} 40 \\ \hline 1 \quad 40 \\ 2 \quad 20 \\ \hline -4 \quad -10 \\ \hline 5 \quad 8 \end{array}$$

8)  $x^2 + 15x - 54$

$(x - 3)(x + 18)$

$$\begin{array}{r} 54 \\ \hline 1 \quad 54 \\ 2 \quad 27 \\ \hline -3 \quad +18 \\ \hline 6 \quad 9 \end{array}$$

$$9) \frac{3m^2 - 33m + 72}{3}$$

$$3[m^2 - 11m + 24]$$

$$3(m-3)(m-8)$$

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

$$10) \frac{20}{5} + \frac{5a}{5} + \frac{12b}{3b} + \frac{3ab}{3b}$$

$$\frac{5(4+a)}{4+a} + \frac{3b(4+a)}{4+a}$$

$$(4+a)(5+3b)$$

$$11) x^2 + 2xy - 48y^2$$

$$(x-6y)(x+8y)$$

$$\begin{array}{r} 48 \\ 1 \quad 48 \\ \hline 2 \quad 24 \\ 3 \quad 16 \\ 4 \quad 12 \\ -6 \quad +8 \end{array}$$

$$12) 25x^2 - 49$$

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

$$13) 3x^2 - 35x - 12$$

$$\frac{3x^2}{x} + \frac{x}{x} - \frac{36x}{-12} - \frac{12}{-12}$$

$$\frac{x(3x+1) - 12(3x+1)}{3x+1}$$

$$(3x+1)(x-12)$$

$$\begin{array}{r} 36 \\ +1 \quad -36 \\ \hline 2 \quad 18 \\ 3 \quad 12 \\ 4 \quad 9 \\ 6 \quad 6 \end{array}$$

$$14) \frac{12 \cdot 24t^2u^3}{2t^2u} - \frac{3 \cdot 6t^2u^2}{2t^2u} + \frac{4 \cdot 8t^3u}{2t^2u}$$

$$2t^2u[12t^2u^3 - 3u + 4t]$$

$$15) \frac{3n^2 - n}{n}$$

$$n[3n-1]$$

$$16) \frac{21x^3}{7x} + \frac{7x^2}{7x} - \frac{28x}{7x}$$

$$7x[3x^2 + x - 4]$$

$$\frac{3x^2}{3x} - \frac{3x}{3x} + \frac{4x}{4} - \frac{4}{4}$$

$$\frac{3x(x-1) + 4(x-1)}{x-1}$$

$$7x(x-1)(3x+4)$$

$$\begin{array}{r} 12 \\ 1 \quad 12 \\ \hline 2 \quad 6 \\ -3 \quad +4 \end{array}$$