



## Factoring Review

### EXERCISES

A. Expand the following:

1)  $-3m(2m^2 - 5mx + 7x^2)$

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

2)  $(2x + 5y)^2$

5)  $(a - b)^2$

3)  $(4ab - 3)^2$

6)  $(b - a)^2$

B. Factor completely:

1)  $12x^3 - 14x^2 - 10x$

4)  $16m^2z^2 - 36$

2)  $4ac - 6ax - 8cx + 12x^2$

5)  $81x^4y^2 - 36x^2$

3)  $64y^2 - 16y + 1$

6)  $20y^2 - 10y + 24$



7)  $x^3 - 8y^3$

10)  $9m^4 - 72m$

8)  $a^2 - 16 - 2ab + b^2$

11)  $x^3 + x^2y + xy^2 + y^3$

9)  $6a^3b + a^2b - 15ab$

12)  $x^2y^2 - c^2d^2$

C. Simplify:

1)  $\frac{3a^2 - 6a^2y}{6a - 12ay}$

3)  $\frac{5x}{2x - 3} - \frac{5x}{3 - 2x}$

2)  $\frac{6x^2 - x - 12}{2x^2 - x - 3}$

4)  $\frac{2x + 1}{4x} - \frac{3x - 1}{6x}$

5)  $\frac{3}{x + 2} + \frac{5}{x^2 - 4} - \frac{2}{x - 2}$

9)  $\frac{2x^2 - 4x}{x^2 - 5x + 6} \div \frac{4x^4 - 36x^2}{x^2 - 9}$



$$6) \frac{m+3}{3m^2-6m-9} - \frac{m-2}{2m^2-2m-12}$$

$$10) \frac{x^2y-9y^3}{x^2+2xy-3y^2} \cdot \frac{y-x}{x-3y}$$

$$7) \frac{a^2-4}{(a-2)^2} \cdot \frac{a^2-9a+14}{a^3+2a^2}$$

$$11) \frac{a^3-64a}{2a^2+16a} \div \frac{a^2-9a+8}{a^2+4a-5}$$

$$8) \frac{2c+b}{b^2} \cdot \frac{3b^2-3bc}{bc+2c^2} \cdot \frac{5bc-10c^2}{b^2-3bc+2c^2}$$

$$12) \frac{s^2+st}{rs-st} \div \frac{s^2-t^2}{r^2-t^2}$$

$$13) \frac{6x^2+7x+2}{8x^2-2x-3} \div \frac{3x^2-19x-14}{8x^2+14x-15}$$

$$14) \left( \frac{x^2+3x-4}{x^2+6x+8} + \frac{8x+56}{x^2+8x+7} \right) \cdot \frac{x^2-x-6}{x^2-x-30}$$

## SOLUTIONS

A. (1)  $-6m^3 + 15m^2x - 21mx^2$  (2)  $4x^2 + 20xy + 25y^2$  (3)  $16a^2b^2 - 24ab + 9$

(4)  $9a^2 - 16b^2$  (5)  $a^2 - 2ab + b^2$  (6)  $a^2 - 2ab + b^2$

B. (1)  $2x(2x+1)(3x-5)$  (2)  $2(a-2x)(2c-3x)$  (3)  $(8y^2-1)^2$  (4)  $4(2mz+3)(2mz-3)$

(5)  $9x^2(3xy-2)(3xy+2)$  (6)  $2(10y^2-5y+12)$  (7)  $(x-2y)(x^2+2xy+4y^2)$

(8)  $(a^2-2ab+b^2)-16 \rightarrow (a+b+4)(a+b-4)$  (9)  $ab(2a-3)(3a+5)$

(10)  $9m(m-2)(m^2+2m+4)$  (11)  $(x+y)(x^2+y^2)$  (12)  $(xy+cd)(xy-cd)$

C. (1)  $\frac{1}{2}$  (2)  $\frac{3x+4}{x+1}$  (3)  $\frac{10x}{2x-3}$  (4)  $\frac{5}{12x}$  (5)  $\frac{x-5}{(x+2)(x-2)}$  (6)  $\frac{-m^2+13m+18}{6(m+1)(m+2)(m-3)}$  (7)  $\frac{a-7}{a^2}$  (8)  $15\frac{1}{b}$

(9)  $\frac{1}{2x(x-3)}$  (10)  $-y$  (11)  $\frac{a+5}{2}$  (12)  $\frac{r+t}{s-t}$  (13)  $\frac{2x+5}{x-7}$  (14)  $\frac{(x+3)(x-3)}{(x+1)(x-6)}$

