

Algebra 2: Factoring & Distributive Law Practice
Section 5.2 in the textbook

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1. Multiply the following.

a. $x(2x - 1)$

b. $3x(x + 5)$

c. $x^2(3x - 5)$

d. $-2x(3x - 1)$

2. Multiply the following. Be careful on e and f!

a. $(x + 4)(x + 5)$

b. $(x - 3)(x - 4)$

c. $(2x - 1)(x + 2)$

d. $(x - 5)(x + 5)$

e. $(x - 5)^2$

f. $(2x + 3)^2$

3. Factor. (All of these have a like term that can be factored out. The like term maybe a number or a variable or both).

a. $x^2 - 8x$

b. $3x^2 + 6x$

c. $5x^2 + 10$

d. $2x^2 - 6x - 2$

e. $5x^3 + 10x^2$

f. $3x^3 - 6x^2 + 30x$

4. Factor the following.

a. $x^2 + 5x + 4$

b. $x^2 + 3x + 2$

c. $x^2 + 8x + 12$

d. $x^2 + 10x + 9$

e. $x^2 + 10x + 25$

f. $x^2 + 6x + 8$

g. $x^2 - 4x + 3$

h. $x^2 - 7x + 12$

i. $x^2 - 10x + 16$

j. $x^2 - 4x + 4$

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

l. $x^2 - 7x + 6$

5. More factoring!

a. $x^2 - x - 12$

b. $x^2 - 2x - 3$

c. $x^2 + 2x - 8$

d. $x^2 + 2x - 15$

e. $x^2 - x - 6$

f. $x^2 - 5x - 24$

g. $x^2 + 3x - 18$

h. $x^2 + 3x - 10$

i. $x^2 - 3x - 10$

j. $x^2 + x - 20$

k. $x^2 - 2x - 35$

l. $x^2 - 11x - 26$

6. Use a combination of factoring techniques to factor the following as fully as possible. I recommend factoring out a -1 if the coefficient on the highest-degree term is negative.

a. $x^3 + 2x^2 + x$

b. $3x^2 - 6x - 9$

c. $x^3 + 5x^2 - 14x$

d. $-x^2 + x + 6$

e. $5x^2 - 5x - 30$

f. $4x^3 + 8x^2 - 32x$

ANSWERS

- 1a. $2x^2 - x$ b. $3x^2 + 15x$ c. $3x^3 - 5x^2$ d. $-6x^2 + 2x$
2a. $x^2 + 9x + 20$ b. $x^2 - 7x + 12$ c. $2x^2 + 3x - 2$ d. $x^2 - 25$ e. $6x^2 + 10x - 4$ f. $4x^2 - 9$
- a. $x(x - 8)$ d. $2(x^2 - 3x - 1)$
3. b. $3x(x + 2)$ e. $5x^2(x + 2)$
c. $5(x^2 + 2)$ f. $3x(x^2 - 2x + 10)$
- a. $(x + 1)(x + 4)$ g. $(x - 3)(x - 1)$
b. $(x + 2)(x + 1)$ h. $(x - 3)(x - 4)$
c. $(x + 6)(x + 2)$ i. $(x - 8)(x - 2)$
4. d. $(x + 1)(x + 9)$ j. $(x - 2)(x - 2)$
e. $(x + 5)(x + 5)$ k. $(x - 8)(x - 1)$
f. $(x + 4)(x + 2)$ l. $(x - 1)(x - 6)$
- a. $(x - 4)(x + 3)$ g. $(x + 6)(x - 3)$
b. $(x - 3)(x + 1)$ h. $(x + 5)(x - 2)$
c. $(x - 2)(x + 4)$ i. $(x - 5)(x + 2)$
5. d. $(x + 5)(x - 3)$ j. $(x + 5)(x - 4)$
e. $(x - 3)(x + 2)$ k. $(x - 7)(x + 5)$
f. $(x - 8)(x + 3)$ l. $(x - 13)(x + 2)$
- a. $x(x + 1)(x + 1)$ d. $-1(x - 3)(x + 2)$
6. b. $3(x + 1)(x - 3)$ e. $5(x - 3)(x + 2)$
c. $x(x + 7)(x - 2)$ f. $4x(x - 2)(x + 4)$