

**LESSON**  
**7-6**

**Practice B**  
**Adding and Subtracting Polynomials**

**Add or subtract.**

1.  $3m^3 + 8m^3 - 3 + m^3 - 2m^2$  \_\_\_\_\_
2.  $2pg - p^5 - 12pg + 5g - 6p^5$  \_\_\_\_\_

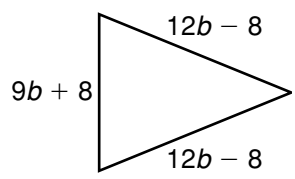
**Add.**

3. 
$$\begin{array}{r} 3k^2 - 2k + 7 \\ + \quad k - 2 \\ \hline \end{array}$$
 \_\_\_\_\_
4. 
$$\begin{array}{r} 5x^2 - 2x + 3y \\ + 6x^2 + 5x + 6y \\ \hline \end{array}$$
 \_\_\_\_\_
5. 
$$\begin{array}{r} 11hz^3 + 3hz^2 + 8hz \\ + 9hz^3 + hz^2 - 3hz \\ \hline \end{array}$$
 \_\_\_\_\_
6.  $(ab^2 + 13b - 4a) + (3ab^2 + a + 7b)$  \_\_\_\_\_
7.  $(4x^3 - x^2 + 4x) + (x^3 - x^2 - 4x)$  \_\_\_\_\_

**Subtract.**

8. 
$$\begin{array}{r} 12d^2 + 3dx + x \\ - (-4d^2 + 2dx - 8x) \\ \hline \end{array}$$
 \_\_\_\_\_
9. 
$$\begin{array}{r} 2v^5 - 3v^4 - 8 \\ - (3v^5 + 2v^4 - 8) \\ \hline \end{array}$$
 \_\_\_\_\_
10. 
$$\begin{array}{r} -y^4 + 6ay^2 - y + a \\ - (-6y^4 - 2ay^2 + y) \\ \hline \end{array}$$
 \_\_\_\_\_
11.  $(-r^2 + 8pr - p) - (-12r^2 - 2pr + 8p)$  \_\_\_\_\_
12.  $(un - n^2 + 2un^3) - (3un^3 + n^2 + 4un)$  \_\_\_\_\_

13. Antoine is making a banner in the shape of a triangle. He wants to line the banner with a decorative border. How long will the border be?



14. Darnell and Stephanie have competing refreshment stand businesses. Darnell's profit can be modeled with the polynomial  $c^2 + 8c - 100$ , where  $c$  is the number of items sold. Stephanie's profit can be modeled with the polynomial  $2c^2 - 7c - 200$ .
- a. Write a polynomial that represents the difference between Stephanie's profit and Darnell's profit.
- \_\_\_\_\_
- b. Write a polynomial to show how much they can expect to earn if they decided to combine their businesses.
- \_\_\_\_\_

**LESSON Practice A**  
**7-6 Adding and Subtracting Polynomials**

Add or subtract.

$$1. 3x^3 + 4 + x^3 - 10 \qquad \underline{\qquad\qquad\qquad 4x^3 - 6}$$

$$2. 6 - 12p^5 - 3p + 8 - 8p^5 \qquad \underline{\qquad\qquad\qquad -20p^5 - 3p + 14}$$

Add.

$$3. \begin{array}{r} 2m + 4 \\ + m + 2 \\ \hline 3m + 6 \end{array} \qquad 4. \begin{array}{r} 3y^2 - y + 3 \\ + 2y^2 + 2y + 9 \\ \hline 5y^2 + y + 12 \end{array} \qquad 5. \begin{array}{r} 4z^3 + 3z^2 + 8 \\ + 2z^3 + z^2 - 3 \\ \hline 6z^3 + 4z^2 + 5 \end{array}$$

$$6. (10g^2 + 3g - 10) + (2g^2 + g + 9) \qquad \underline{\qquad\qquad\qquad 12g^2 + 4g - 1}$$

$$7. (4x^3 - x^2 + 2x) + (3x^3 + x^2 + 4x) \qquad \underline{\qquad\qquad\qquad 7x^3 + 6x}$$

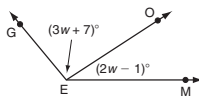
Subtract.

$$8. \begin{array}{r} 12k + 3 \\ - (4k + 2) \\ \hline 8k + 1 \end{array} \qquad 9. \begin{array}{r} 6s^3 + 9s + 10 \\ - (3s^3 + 4s - 10) \\ \hline 3s^3 + 5s + 20 \end{array} \qquad 10. \begin{array}{r} 15a^4 + 6a^2 + a \\ - (6a^4 - 2a^2 + a) \\ \hline 9a^4 + 8a^2 \end{array}$$

$$11. (11b^2 + 3b - 1) - (2b^2 + 2b + 8) \qquad \underline{\qquad\qquad\qquad 9b^2 + b - 9}$$

$$12. (c^3 - c^2 + 2c) - (-3c^3 - c^2 - 4c) \qquad \underline{\qquad\qquad\qquad 4c^3 + 6c}$$

13. Write a polynomial that represents the difference between the measures of angle GEO and angle OEM.



$$\underline{\qquad\qquad\qquad w + 8}$$

14. Becki is building an enclosure for her rabbits against the side of her house.

a. Find the difference between the length and the width of the enclosure.

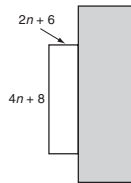
$$\underline{\qquad\qquad\qquad 2n + 2}$$

b. Find the perimeter of the enclosure not including the side of the house.

$$\underline{\qquad\qquad\qquad 8n + 20}$$

c. Find the perimeter of the enclosure if she built it in the yard with out the house as a wall.

$$\underline{\qquad\qquad\qquad 12n + 28}$$



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**LESSON Practice B**  
**7-6 Adding and Subtracting Polynomials**

Add or subtract.

$$1. 3m^3 + 8m^3 - 3 + m^3 - 2m^2 \qquad \underline{\qquad\qquad\qquad 12m^3 - 2m^2 - 3}$$

$$2. 2pg - p^5 - 12pg + 5g - 6p^5 \qquad \underline{\qquad\qquad\qquad -7p^5 - 10pg + 5g}$$

Add.

$$3. \begin{array}{r} 3k^2 - 2k + 7 \\ + k - 2 \\ \hline 3k^2 - k + 5 \end{array} \qquad 4. \begin{array}{r} 5x^2 - 2x + 3y \\ + 6x^2 + 5x + 6y \\ \hline 11x^2 + 3x + 9y \end{array} \qquad 5. \begin{array}{r} 11hz^3 + 3hz^2 + 8hz \\ + 9hz^3 + hz^2 - 3hz \\ \hline 20hz^3 + 4hz^2 + 5hz \end{array}$$

$$6. (ab^2 + 13b - 4a) + (3ab^2 + a + 7b) \qquad \underline{\qquad\qquad\qquad 4ab^2 + 20b - 3a}$$

$$7. (4x^3 - x^2 + 4x) + (x^3 - x^2 - 4x) \qquad \underline{\qquad\qquad\qquad 5x^3 - 2x^2}$$

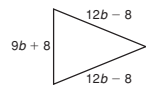
Subtract.

$$8. \begin{array}{r} 12d^2 + 3dx + x \\ - (-4d^2 + 2dx - 8x) \\ \hline 16d^2 + dx + 9x \end{array} \qquad 9. \begin{array}{r} 2v^5 - 3v^4 - 8 \\ - (3v^5 + 2v^4 - 8) \\ \hline -v^5 - 5v^4 \end{array} \qquad 10. \begin{array}{r} -y^4 + 6ay^2 - y + a \\ - (-6y^4 - 2ay^2 + y) \\ \hline 5y^4 + 8ay^2 - 2y + a \end{array}$$

$$11. (-r^2 + 8pr - p) - (-12r^2 - 2pr + 8p) \qquad \underline{\qquad\qquad\qquad 11r^2 + 10pr - 9p}$$

$$12. (un - n^2 + 2un^3) - (3un^3 + n^2 + 4un) \qquad \underline{\qquad\qquad\qquad -3un - 2n^2 - un^3}$$

13. Antoine is making a banner in the shape of a triangle. He wants to line the banner with a decorative border. How long will the border be?



$$\underline{\qquad\qquad\qquad 33b - 8}$$

14. Darnell and Stephanie have competing refreshment stand businesses. Darnell's profit can be modeled with the polynomial  $c^2 + 8c - 100$ , where  $c$  is the number of items sold. Stephanie's profit can be modeled with the polynomial  $2c^2 - 7c - 200$ .

a. Write a polynomial that represents the difference between Stephanie's profit and Darnell's profit.

$$\underline{\qquad\qquad\qquad c^2 - 15c - 100}$$

b. Write a polynomial to show how much they can expect to earn if they decided to combine their businesses.

$$\underline{\qquad\qquad\qquad 3c^2 + c - 300}$$

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**LESSON Practice C**  
**7-6 Adding and Subtracting Polynomials**

Add or subtract.

$$1. -h^5 + 4h^5 - 3h^4 + 2h^5 - 9h^5 \qquad \underline{\qquad\qquad\qquad -10h^5 + 6h^5 - 3h^4}$$

$$2. 6qw^4 + 9qw^3 - 13qw^4 + 14wq^3 - 7w^4 \qquad \underline{\qquad\qquad\qquad -7qw^4 - 7w^4 + 9qw^3 + 14wq^3}$$

Add.

$$3. \begin{array}{r} -2m + 1 \\ + 6m^2 + m - 2 \\ \hline 6m^2 - m - 1 \end{array} \qquad 4. \begin{array}{r} 8yx^2 - x + 6y \\ + 2yx^2 + 11x + 3y \\ \hline 10yx^2 + 10x + 9y \end{array} \qquad 5. \begin{array}{r} 7k^3 + 4zk^2 + 9zk \\ + 5zk^3 - 10zk^2 - 8zk \\ \hline 5zk^3 + 7k^3 - 6zk^2 + zk \end{array}$$

$$6. (-cb^2 + 2b - 14c) + (3cb^2 + 3c - 3b) \qquad \underline{\qquad\qquad\qquad 2cb^2 - b - 11c}$$

$$7. (4a^4 - 9a^2 + 4a^3) + (a^3 - 11a^2 - 4a^5) \qquad \underline{\qquad\qquad\qquad 4a^5 + 4a^4 + 5a^3 - 20a}$$

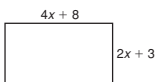
Subtract.

$$8. \begin{array}{r} 13s^2 + 2sx + 8x \\ - (-2s^2 - 3sx + x) \\ \hline 15s^2 + 5sx + 7x \end{array} \qquad 9. \begin{array}{r} 8r^5 - 11ur^4 - 7 \\ - (13r^5 + 2r^4 - 12) \\ \hline -5r^5 - 11ur^4 - 2r^4 + 5 \end{array} \qquad 10. \begin{array}{r} -x^4 + 5ax^2 - x + a \\ - (-2x^4 - 5ax^2 - x + b) \\ \hline x^4 + 10ax^2 + a - b \end{array}$$

$$11. (-3p + pm - m^2) - (2m^2 - 13p - 5pm) \qquad \underline{\qquad\qquad\qquad -3m^2 + 6pm + 10p}$$

$$12. (ag^3 - g^2 + 2ag^3) - (3a^3g + g^2 - 4ag) \qquad \underline{\qquad\qquad\qquad 3ag^3 - 3a^3g + 4ag - 2g^2}$$

13. Vince is going to frame the rectangular picture with dimensions shown. The frame will be  $x + 1$  inches wide. Find the perimeter of the frame.



$$\underline{\qquad\qquad\qquad 20x + 30}$$

14. Mr. Watford owns two car dealerships. His profit from the first can be modeled with the polynomial  $c^3 - c^2 + 2c - 100$ , where  $c$  is the number of cars he sells. Mr. Watford's profit from his second dealership can be modeled with the polynomial  $c^3 - 4c - 300$ .

a. Write a polynomial to represent the difference of the profit at his first dealership and the profit at his second dealership.

$$\underline{\qquad\qquad\qquad c^3 - 2c^2 + 6c + 200}$$

b. What is the total amount of profit Mr. Watford earns from both dealerships?

$$\underline{\qquad\qquad\qquad c^3 - 2c - 400}$$

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**LESSON Reteach**  
**7-6 Adding and Subtracting Polynomials**

You can add or subtract polynomials by combining like terms.

The following are like terms:  $4y$  and  $7y$      $8x^2$  and  $2x^2$      $7m^5$  and  $m^5$

same variables raised to same power

The following are not like terms:  $3x^2$  and  $3x$      $4y$  and  $7$      $8m$  and  $3n$

same variable, different exponent

one with variable, one constant

same power, but different variable

Add  $3x^2 + 4x + 5x^2 + 6x$ .

$$3x^2 + 4x + 5x^2 + 6x$$

Identify like terms.

$$3x^2 + 5x^2 + 4x + 6x$$

Rearrange terms so that like terms are together.

$$8x^2 + 10x$$

Combine like terms.

Add  $(5y^2 + 7y + 2) + (4y^2 + y + 8)$ .

$$(5y^2 + 7y + 2) + (4y^2 + y + 8)$$

Identify like terms.

$$(5y^2 + 4y^2) + (7y + y) + (2 + 8)$$

Rearrange terms so that like terms are together.

$$9y^2 + 8y + 10$$

Combine like terms.

Determine whether the following are like terms. Explain.

- $4x$  and  $x^4$     no; same variable raised to different power
- $5y$  and  $7y$     yes; same variable raised to same power
- $2z^3$  and  $4x^3$     no; different variable raised to same power

Add.

$$4. 2y^2 + 3y + 7y + y^2 \qquad 5. 8m^4 + 3m - 4m^4 \qquad 6. 12x^5 + 10x^4 + 8x^4$$

$$\underline{\qquad\qquad\qquad 3y^2 + 10y} \qquad \underline{\qquad\qquad\qquad 4m^4 + 3m} \qquad \underline{\qquad\qquad\qquad 12x^5 + 18x^4}$$

$$7. (6x^2 + 3x) + (2x^2 + 6x) \qquad \underline{\qquad\qquad\qquad 8x^2 + 9x}$$

$$8. (m^2 - 10m + 5) + (8m + 2) \qquad \underline{\qquad\qquad\qquad m^2 - 2m + 7}$$

$$9. (6x^3 + 5x) + (4x^3 + x^2 - 2x + 9) \qquad \underline{\qquad\qquad\qquad 10x^3 + x^2 + 3x + 9}$$

$$10. (2y^5 - 6y^3 + 1) + (y^5 + 8y^4 - 2y^3 - 1) \qquad \underline{\qquad\qquad\qquad 3y^5 + 8y^4 - 8y^3}$$

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