Name _____ Date _____ Class _____

Add or subtract.

1. $3m^3 + 8m^3 - 3 + m^3 - 2m^2$ _____

2. $2pg - p^5 - 12pg + 5g - 6p^5$ _____

Add.

3. $3k^2 - 2k + 7$
$\underline{+\quad\quad k - 2}$

4. $\quad 5x^2 - 2x + 3y$
$\underline{+\;6x^2 + 5x + 6y}$

5. $\;11hz^3 + 3hz^2 + 8hz$
$\underline{+\;9hz^3 + hz^2 - 3hz}$

_____   _____   _____

6. $(ab^2 + 13b - 4a) + (3ab^2 + a + 7b)$ _____

7. $(4x^3 - x^2 + 4x) + (x^3 - x^2 - 4x)$ _____

Subtract.

8. $\quad 12d^2 + 3dx + x$
$\underline{-(-4d^2 + 2dx - 8x)}$

9. $\quad 2v^5 - 3v^4 - 8$
$\underline{-(3v^5 + 2v^4 - 8)}$

10. $\quad -y^4 + 6ay^2 - y + a$
$\underline{-(-6y^4 - 2ay^2 + y)}$

_____   _____   _____

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?

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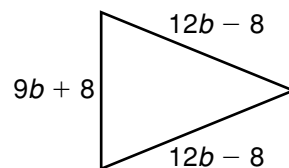
14. Darnell and Stephanie have competing refreshment stand businesses.
Darnell's profit can be modeled with the polynomial $c^2 + 8c - 100$,
where c is the number of items sold. Stephanie's profit can be modeled
with the polynomial $2c^2 - 7c - 200$.

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.

_____

Holt Algebra 1

Practice A
Adding and Subtracting Polynomials

Add or subtract.

1. $3x^3 + 4 + x^3 - 10$ ___ $4x^3 - 6$

2. $6 - 12p^5 - 3p + 8 - 8p^5$ ___ $-20p^5 - 3p + 14$

Add.

3. $2m + 4$
   $+ \; m + 2$ ___ $3m + 6$

4. $3y^2 - y + 3$
   $+ \; 2y^2 + 2y + 9$ ___ $5y^2 + y + 12$

5. $4z^3 + 3z^2 + 8$
   $+ \; 2z^3 + z^2 - 3$ ___ $6z^3 + 4z^2 + 5$

6. $(10g^2 + 3g - 10) + (2g^2 + g + 9)$ ___ $12g^2 + 4g - 1$

7. $(4x^3 - x^2 + 2x) + (3x^3 + x^2 + 4x)$ ___ $7x^3 + 6x$

Subtract.

8. $12k + 3$
   $- \; (4k + 2)$ ___ $8k + 1$

9. $6s^3 + 9s + 10$
   $-(3s^3 + 4s - 10)$ ___ $3s^3 + 5s + 20$

10. $15a^4 + 6a^2 + a$
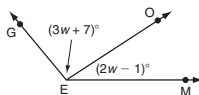 $-(6a^4 - 2a^2 + a)$ ___ $9a^4 + 8a^2$

11. $(11b^2 + 3b - 1) - (2b^2 + 2b + 8)$ ___ $9b^2 + b - 9$

12. $(c^3 - c^2 + 2c) - (-3c^3 - c^2 - 4c)$ ___ $4c^3 + 6c$

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

___ $w + 8$

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.
   ___ $2n + 2$

   b. Find the perimeter of the enclosure not including the side of the house.
   ___ $8n + 20$

   c. Find the perimeter of the enclosure if she built it in the yard with out the house as a wall.
   ___ $12n + 28$

Holt Algebra 1

Practice B
Adding and Subtracting Polynomials

Add or subtract.

1. $3m^3 + 8m^3 - 3 + m^3 - 2m^2$ ___ $12m^3 - 2m^2 - 3$

2. $2pg - p^5 - 12pg + 5g - 6p^5$ ___ $-7p^5 - 10pg + 5g$

Add.

3. $3k^2 - 2k + 7$
   $+ \quad\quad k - 2$ ___ $3k^2 - k + 5$

4. $5x^2 - 2x + 3y$
   $+ \; 6x^2 + 5x + 6y$ ___ $11x^2 + 3x + 9y$

5. $11hz^2 + 3hz^2 + 8hz$
   $+ \; 9hz^3 + hz^2 - 3hz$ ___ $20hz^3 + 4hz^2 + 5hz$

6. $(ab^2 + 13b - 4a) + (3ab^2 + a + 7b)$ ___ $4ab^2 + 20b - 3a$

7. $(4x^3 - x^2 + 4x) + (x^3 - x^2 - 4x)$ ___ $5x^3 - 2x^2$

Subtract.

8. $12d^2 + 3dx + x$
   $-(-4d^2 + 2dx - 8x)$ ___ $16d^2 + dx + 9x$

9. $2v^5 - 3v^4 - 8$
   $-(3v^5 + 2v^4 - 8)$ ___ $-v^5 - 5v^4$

10. $-y^4 + 6ay^2 - y + a$
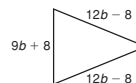 $-(-6y^4 - 2ay^2 + y)$ ___ $5y^4 + 8ay^2 - 2y + a$

11. $(-r^2 + 8pr - p) - (-12r^2 - 2pr + 8p)$ ___ $11r^2 + 10pr - 9p$

12. $(un - n^2 + 2un^3) - (3un^3 + n^2 + 4un)$ ___ $-3un - 2n^2 - un^3$

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?

   ___ $33b - 8$

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.
   ___ $c^2 - 15c - 100$

   b. Write a polynomial to show how much they can expect to earn if they decided to combine their businesses.
   ___ $3c^2 + c - 300$

Holt Algebra 1

Practice C
Adding and Subtracting Polynomials

Add or subtract.

1. $-h^6 + 4h^5 - 3h^4 + 2h^5 - 9h^6$ ___ $-10h^6 + 6h^5 - 3h^4$

2. $6qw^4 + 9qw^3 - 13qw^4 + 14wq^3 - 7w^4$ ___ $-7qw^4 - 7w^4 + 9qw^3 + 14wq^3$

Add.

3. $\quad\quad -2m + 1$
   $+ \; 6m^2 + m - 2$ ___ $6m^2 - m - 1$

4. $8yx^2 - x + 6y$
   $+ \; 2yx^2 + 11x + 3y$ ___ $10yx^2 + 10x + 9y$

5. $7k^3 + 4zk^2 + 9zk$
   $+ \; 5zk^3 - 10zk^2 - 8zk$ ___ $5zk^3 + 7k^3 - 6zk^2 + zk$

6. $(-cb^2 + 2b - 14c) + (3cb^2 + 3c - 3b)$ ___ $2cb^2 - b - 11c$

7. $(4a^4 - 9a^2 + 4a^3) + (a^3 - 11a^2 - 4a^5)$ ___ $4a^5 + 4a^4 + 5a^3 - 20a$

Subtract.

8. $13s^2 + 2sx + 8x$
   $-(-2s^2 - 3sx + x)$ ___ $15s^2 + 5sx + 7x$

9. $8r^5 - 11ur^4 - 7$
   $-(13r^5 + 2r^4 - 12)$ ___ $-5r^5 - 11ur^4 - 2r^4 + 5$

10. $-x^4 + 5ax^2 - x + a$
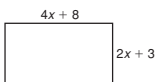 $-(-2x^4 - 5ax^2 - x + b)$ ___ $x^4 + 10ax^2 + a - b$

11. $(-3p + pm - m^2) - (2m^2 - 13p - 5pm)$ ___ $-3m^2 + 6pm + 10p$

12. $(ag^3 - g^2 + 2ag) - (3a^3g + g^2 - 4ag)$ ___ $3ag^3 - 3a^3g + 4ag - 2g^2$

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.

   ___ $20x + 30$

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 $c^2 - 4c - 300$.

   a. Write a polynomial to represent the difference of the profit at his first dealership and the profit at his second dealership.
   ___ $c^3 - 2c^2 + 6c + 200$

   b. What is the total amount of profit Mr. Watford earns from both dealerships?
   ___ $c^3 - 2c - 400$

Holt Algebra 1

Reteach
Adding and Subtracting Polynomials

You can add or subtract polynomials by combining like terms.

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

same variables raised to same power

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

same variable, different exponent $\quad$ one with variable, one constant $\quad$ same power, but different variable

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

$\underline{3x^2} + \underline{4x} + \underline{5x^2} + \underline{6x}$ $\quad\quad$ Identify like terms.

$\underline{3x^2} + \underline{5x^2} + \underline{4x} + \underline{6x}$ $\quad\quad$ Rearrange terms so that like terms are together.

$8x^2 + 10x$ $\quad\quad$ Combine like terms.

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

$(\underline{5y^2} + \underline{7y} + \underline{2}) + (\underline{4y^2} + \underline{y} + \underline{8})$ $\quad\quad$ Identify like terms.

$(\underline{5y^2} + \underline{4y^2}) + (\underline{7y} + \underline{y}) + (\underline{2} + \underline{8})$ $\quad\quad$ Rearrange terms so that like terms are together.

$9y^2 + 8y + 10$ $\quad\quad$ Combine like terms.

Determine whether the following are like terms. Explain.

1. $4x$ and x^4 ___ no; same variable raised to different power

2. $5y$ and $7y$ ___ yes; same variable raised to same power

3. $2z^3$ and $4x^3$ ___ no; different variable raised to same power

Add.

4. $2y^2 + 3y + 7y + y^2$ ___ $3y^2 + 10y$

5. $8m^4 + 3m - 4m^4$ ___ $4m^4 + 3m$

6. $12x^5 + 10x^4 + 8x^4$ ___ $12x^5 + 18x^4$

7. $(6x^2 + 3x) + (2x^2 + 6x)$ ___ $8x^2 + 9x$

8. $(m^2 - 10m + 5) + (8m + 2)$ ___ $m^2 - 2m + 7$

9. $(6x^3 + 5x) + (4x^3 + x^2 - 2x + 9)$ ___ $10x^3 + x^2 + 3x + 9$

10. $(2y^5 - 6y^3 + 1) + (y^5 + 8y^4 - 2y^3 - 1)$ ___ $3y^5 + 8y^4 - 8y^3$

Holt Algebra 1

Holt Algebra 1