PRACTICE

Add or subtract.

1. $(2x^4 - 6x^2 + 8) + (-x^4 + 3x^2 - 12)$

2. $(7x^2 - 2x + 1) + (8x^3 + 2x^2 + 7x - 4)$

3. $(5x^2 - 6x^3 + 11) + (9x^3 + 3x + 7x^4)$

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

5. $(2x^4 - 6x^2 + 8) - (-x^4 + 5x^2 - 12)$

6. $(x^3 + 25) - (-x^2 - 18x - 12)$

7. $(2x^2 + 3x + 1) - (7x^2 - 2x + 7x^3)$

8. $(10x^2 + 3) - (15x^2 - 4x + 9x^4 + 7)$

9. $(14x^4 - x^3 + 2x^2 + 5x + 15) - (10x^4 + 3x^3 - 5x^2 - 6x + 4)$

10. $(-6x^3 + 10x + 26) + (5x^2 - 6x^5 + 7x) + (3 - 22x^4)$

11. According to data from the U.S. Census Bureau, the total number of people in the United States labor force can be approximated by the function $T(x) = -0.011x^2 + 2x + 107$, where x is the number of years since 1980 and $T(x)$ is the number of workers in millions. The number of women in the United States labor force can be approximated by the function $W(x) = -0.012x^2 + 1.26x + 45.5$.

a. Write a polynomial function $M(x)$ that models the number of men in the labor force.

b. Estimate the number of men in the labor force in 2008. Explain how you made your estimate.

12. Error Analysis A student was asked to find the difference $(4x^5 - 3x^4 + 6x^2) - (7x^5 - 6x^4 + x^3)$. The student's work is shown at right. Identify the student's error and give the correct difference.

$$\begin{array}{rr} 4x^5 - 3x^4 & +6x^2 \\ -7x^5 - 6x^4 + x^3 & \\ \hline -3x^5 - 9x^4 + x^3 & +6x^2 \end{array}$$

Name _____ Class _____ Date _____

6-4

Additional Practice

Add or subtract.

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

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

Add.

3. $3k^2 - 2k + 7$
   $+ \quad k - 2$
   _____

4. $5x^2 - 2x + 3y$
   $+ 6x^2 + 5x + 6y$
   _____

5. $11hz^3 + 3hz^2 + 8hz$
   $+ 9hz^3 + hz^2 - 3hz$
   _____

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

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

Subtract.

8. $12d^2 + 3dx + x$
   $-(-4d^2 + 2dx - 8x)$
   _____

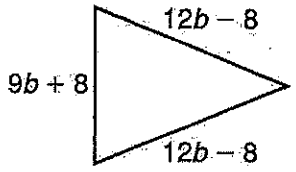
9. $2v^5 - 3v^4 - 8$
   $-(3v^5 + 2v^4 - 8)$
   _____

10. $-y^4 + 6ay^2 - y + a$
    $-(-6y^4 - 2ay^2 + y)$
    _____

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.

    _____

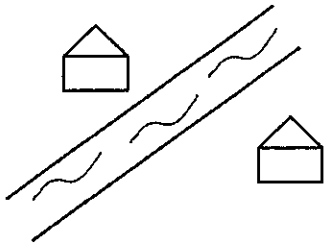
Problem Solving

Write the correct answer.

1. There are two boxes in a storage unit. The volume of the first box is $4x^3 + 4x^2$ cubic units. The volume of the second box is $6x^3 - 18x^2$ cubic units. Write a polynomial for the total volume of the two boxes.

2. The recreation field at a middle school is shaped like a rectangle with a length of $15x$ yards and a width of $10x - 3$ yards. Write a polynomial for the perimeter of the field. Then calculate the perimeter if $x = 2$.

3. Two cabins on opposite banks of a river are $12x^2 - 7x + 5$ feet apart. One cabin is $9x + 1$ feet from the river. The other cabin is $3x^2 + 4$ feet from the river. Write the polynomial that represents the width of the river where it passes between the two cabins. Then calculate the width if $x = 3$.



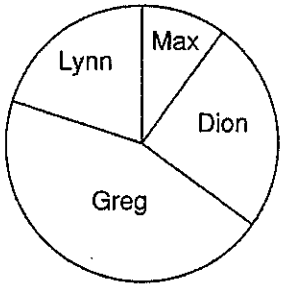
The circle graph represents election results for the president of the math team. Use the graph for questions 4–6. Select the best answer.

4. The angle value of Greg's sector can be modeled by $x^2 + 6x + 2$. The angle value of Dion's sector can be modeled by $7x + 20$. Which polynomial represents both sectors combined?

   A $x^2 + x + 18$ C $6x^2 + 7x + 18$

   B $x^2 + 13x + 22$ D $7x^2 + 6x + 22$

Math Team Election Results



5. The sum of Greg and Lynn's sectors is $2x^2 + 4x - 6$. The sum of Max and Dion's sectors is $10x + 26$. Which polynomial represents how much greater Greg and Lynn's combined sectors are than Max and Dion's?

   F $2x^2 + 6x + 32$ H $2x^2 - 6x - 32$

   G $2x^2 - 6x + 20$ J $2x^2 + 14x + 20$

6. The sum of Lynn's sector and Max's sector is $2x^2 - 9x - 2$. Max's sector can be modeled by $3x + 6$. Which polynomial represents the angle value of Lynn's sector?

   A $2x^2 - 6x + 4$ C $2x^2 - 12x + 8$

   B $2x^2 - 6x - 4$ D $2x^2 - 12x - 8$