

LESSON  
9.1

## Practice

For use with pages 554-560

Write the polynomial so that the exponents decrease from left to right.  
Identify the degree and leading coefficient of the polynomial.

1.  $4n^5$

$4n^5$

D: 5

LC: 4

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

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

D: 2

LC: -2

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

$4y^4 + 6y^3 - 2y^2 - 5$

D: 4

LC: 4

Tell whether the expression is a polynomial. If it is a polynomial, find its degree and classify it by the number of its terms. Otherwise, tell why it is not a polynomial.

4.  $10^8$

No - variable  
exponent

5.  $-6n^2 - n^3 + 4$

Yes -

~~polynomial~~Third degree  
trinomial

6.  $w^{-3} + 5$

No - negative  
exponent

Find the sum or difference.

7.  $(3z^2 + z - 4) + (2z^2 + 2z - 3)$

$5z^2 + 3z - 7$

8.  $(8c^2 - 4c + 1) + (-3c^2 + c + 5)$

$5c^2 - 3c + 6$

9.  $(2x^2 + 5x - 1) + (x^2 - 5x + 7)$

$3x^2 + 6$

10.  $(10b^2 - 3b + 2) - (4b^2 + 5b + 1)$

$10b^2 - 3b + 2 - 4b^2 - 5b - 1$

$6b^2 - 8b + 1$

11.  $(-4m^2 + 3m - 1) - (m + 2)$

$-4m^2 + 3m - 1 - m - 2$

$-4m^2 + 2m - 3$

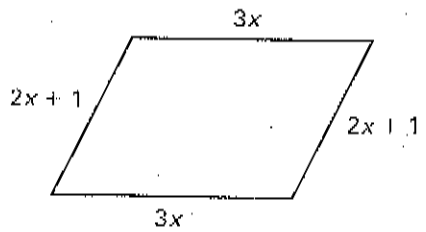
12.  $(3m + 4) - (2m^2 - 6m + 5)$

$3m + 4 - 2m^2 + 6m - 5$

$-2m^2 + 9m - 1$

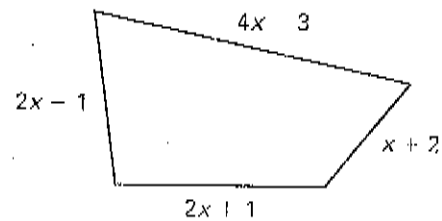
Write a polynomial that represents the perimeter of the figure.

13.



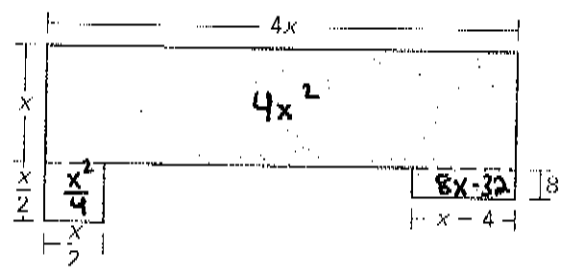
$P = 10x + 2$

14.



$P = 9x - 1$

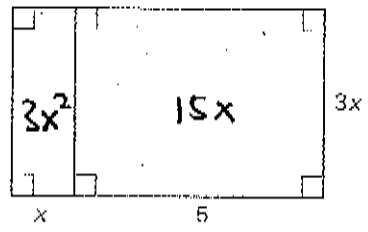
15. **Floor Plan** The first floor of a home has the floor plan shown. Find the area of the first floor.



$4x^2 + \frac{x^2}{4} + 8x - 32$   
 $\frac{16x^2}{4} + \frac{x^2}{4} + 8x - 32$   
 Common denom  $\frac{17x^2}{4} + 8x - 32$

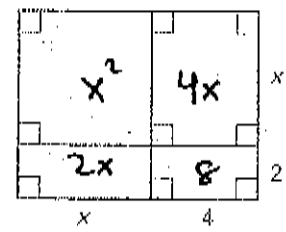
Write a polynomial for the area of the shaded region.

19.



$A = 3x^2 + 15x$

20.



$A = x^2 + 6x + 8$

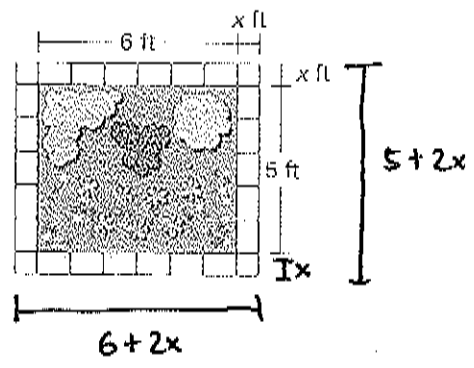
21. **Flower Bed** You are designing a rectangular flower bed that you will border using brick pavers. The width of the border around the bed will be the same on every side, as shown.

a. Write a polynomial that represents the total area of the flower bed and the border.

$A = (6 + 2x)(2x + 5)$   
 $= 4x^2 + 22x + 30$

b. Find the total area of the flower bed and border when the width of the border is 1.5 feet.

$A = 4(1.5)^2 + 22(1.5) + 30$   
 $= 4(2.25) + 33 + 30$   
 $= 10 + 33 + 30$   
 $= 73$



**LESSON**  
**9.2**
**Practice**
*For use with pages 561-568*
**Find the product.**

1.  $x^2(6x^2 - 3x - 1)$

$$6x^4 - 3x^3 - x^2$$

2.  $-5a^3(4a^4 - 3a + 1)$

$$-20a^7 + 15a^2 - 5a^3$$

3.  $4d^2(-2d^3 + 5d^2 - 6d + 2)$

$$-8d^5 + 20d^4 - 24d^3 + 8d^2$$

4.  $(3x + 1)(2x - 5)$

$$6x^2 - 13x - 5$$

5.  $(2y + 3)(y - 5)$

$$2y^2 - 7y - 15$$

6.  $(6a - 3)(4a - 1)$

$$24a^2 - 18a + 3$$

7.  $(b - 8)(5b - 2)$

$$5b^2 - 42b + 16$$

8.  $(8m + 7)(2m + 3)$

$$16m^2 + 38m + 21$$

9.  $(-p + 2)(3p^2 + 1)$

$$-3p^3 + 6p^2 - p + 2$$

10.  $(2z - 7)(z + 3)$

$$-2z^2 + 13z - 21$$

11.  $(-3d + 10)(2d - 1)$

$$-6d^2 + 23d - 10$$

12.  $(n + 1)(n^2 + 4n + 5)$

$$n^3 + 5n^2 + 9n + 5$$

13.  $(w - 3)(w^2 + 8w + 1)$

$$w^3 + 5w^2 - 23w - 3$$

14.  $(2s + 5)(s^2 + 3s - 1)$

$$2s^3 + 11s^2 + 13s - 5$$

15.  $(x^2 - 4xy + y^2)(5xy)$

$$5x^3y - 20x^2y^2 + 5xy^3$$

**Simplify the expression.**

16.  $a(3a + 1) + (a + 1)(a - 1)$

$$3a^2 + a + a^2 - 1$$

$$4a^2 - 1$$

17.  $(x + 2)(x + 5) - x(4x - 1)$

$$x^2 + 7x + 10 - (4x^2 + x)$$

$$x^2 + 7x + 10 - 4x^2 - x \rightarrow -3x^2 + 6x + 10$$

18.  $(m + 7)(m - 3) + (m - 4)(m + 5)$

$$m^2 + 4m - 21 + m^2 + m - 20$$

$$2m^2 + 5m - 41$$

Name \_\_\_\_\_

Date \_\_\_\_\_

LESSON  
93**Practice**

For use with pages 569--574

Find the product of the square of the binomial.

1.  $(x - 9)^2$

$x^2 - 18x + 81$

2.  $(m + 11)^2$

$m^2 + 22m + 121$

3.  $(5s + 2)^2$

$25s^2 + 20s + 4$

4.  $(3m + 7)^2$

$9m^2 + 42m + 49$

5.  $(4p - 5)^2$

$16p^2 - 40p + 25$

6.  $(7a - 6)^2$

$49a^2 - 84a + 36$

7.  $(10z - 3)^2$

$100z^2 - 60z + 9$

8.  $(2x + y)^2$

$4x^2 + 4xy + y^2$

9.  $(3y - x)^2$

$9y^2 - 6xy + x^2$

Find the product of the sum and difference.

10.  $(a - 9)(a + 9)$

$a^2 - 81$

11.  $(z - 20)(z + 20)$

$z^2 - 400$

12.  $(5r + 1)(5r - 1)$

$25r^2 - 1$

13.  $(6m + 10)(6m - 10)$

$36m^2 - 100$

14.  $(7p - 2)(7p + 2)$

$49p^2 - 4$

15.  $(9c - 1)(9c + 1)$

$81c^2 - 1$

16.  $(4x + 3)(4x - 3)$

$16x^2 - 9$

17.  $(4 - w)(4 + w)$

$16 - w^2$

18.  $(5 - 2y)(5 + 2y)$

$25 - 4y^2$