

## Chapter 7 Test

### Multiple Choice

- The expanded form of  $(4x - 3)^2$  is:  
A  $16x^2 - 24x + 9$       B  $16x^2 - 24x - 9$   
C  $16x^2 + 9$       D  $16x^2 - 9$
- The expanded form of  $(5x - 4)(3x + 5)$  is:  
A  $15x^2 - 20$       B  $15x^2 - 13x + 20$   
C  $15x^2 + 13x - 20$       D  $15x^2 - 13x - 20$
- The school parking lot is  $3x + 5$ , by  $x + 2$ . The area of the parking lot is:  
A  $3x^2 + 10$       B  $3x^2 + 11x + 10$   
C  $4x + 7$       D  $9x^2 + 17x + 10$
- Which expression is equal to  $3x^2 + 12x + 18$  factored completely?  
A  $3(x + 6)(x + 3)$       B  $3(x + 6)(x - 3)$   
C  $3x(x^2 + 4x + 6)$       D  $3(x^2 + 4x + 6)$
- The area of a television is represented by  $6x^2 + 24x$ . What are the dimensions of television?  
A  $6x^2$  by  $(x + 4)$       B  $6$  by  $(x^2 + 4)$   
C  $6$  by  $(x + 4)$       D  $6x$  by  $(x + 4)$
- Which expression is NOT a difference of squares.  
A  $x^2 - 2$       B  $16 - 4x^2$   
C  $9x^2 - 25$       D  $x^2 - 4$
- The dimensions of a rectangle with an area of  $x^2 - x - 6$  are:  
A  $(x - 3)$  by  $(x + 2)$       B  $(x + 3)$  by  $(x - 2)$   
C  $(x + 3)$  by  $(x + 2)$       D  $(x - 3)$  by  $(x - 2)$
- The factored form of  $4x^2 - 81$  is:  
A  $(2x - 9)(2x - 9)$       B  $(2x - 9)(2x + 9)$   
C  $(4x - 9)(4x - 9)$       D  $(4x - 9)(4x + 9)$

### Short Response

- Expand and simplify.  
a)  $(x + 14)^2$       b)  $(x - 9)^2$   
c)  $(6x + 3)(2x - 1)$       d)  $(4x - 7)(2x + 3)$

- Factor each polynomial completely.  
a)  $2x^2 + 16x + 8$       b)  $3x^2 + 12x - 9$   
c)  $4x^2 + 16x - 60$       d)  $5x^2 - 20x + 25$
- Determine the dimensions of each rectangle, given the area.  
a)  $10x^2 - 5x$       b)  $9x^2 + 39x$   
c)  $6x^2 + 27x$       d)  $14x^2 + 56x$
- Factor each difference of squares.  
a)  $x^2 - 225$       b)  $81 - 25x^2$   
c)  $16x^2 - 100$       d)  $9x^2 - 64$
- Determine the dimensions of each rectangle, given the area.  
a)  $x^2 - 23x - 50$       b)  $x^2 - 6x - 40$   
c)  $x^2 + 2x - 24$       d)  $x^2 + 9x + 18$

### Extend

- Danny wants to have his bathroom floor re-tiled. The dimensions of the floor are  $(3x + 1)$  by  $(2x + 1)$ .  
a) Write a quadratic expression that represents the area of the floor.  
b) If  $x = 1$  m, what is the area that needs to be re-tiled?  
c) The tiles cost  $\$5/\text{m}^2$ . How much will it cost Danny to re-tile his floor?
- The total area of a soccer field is  $9x^2$ . Mr. Jennings cut the grass. In the morning, he cut a 2-m-by-2-m portion of the field.  
a) Write an expression to represent the area left uncut.  
b) Factor the expression from part a) to find expressions for the dimensions of a rectangle with an equal area to the remaining area of the field.  
c) Find the actual dimensions of the rectangle if  $x = 5$  m.
- The perimeter of a college campus is 70 m. The area is represented by  $x^2 + 15x - 16$ . Find the actual dimensions of the campus.