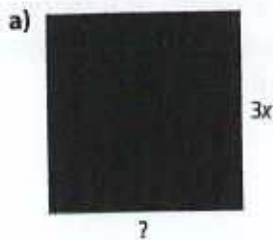# 7.1, 7.2, 7.3

Sketch an area model to represent each expression.

a) $(2.3g)(4.6g + 5)$

b) $(5 + 7.2f)(2.1f)$

A rectangular field is 7 m long and has an area of 84 m². Write an equation you can use to determine the field's width. What is the field's width?

Determine the missing dimension in each figure. Show your work.

a)

3x

?

b)

7x

?

Use the distributive property to multiply each pair of expressions. Do not simplify.

a) $(1.2z)(-4z + 2y)$

b) $(-2e - 3f + 4)(-e)$

Multiply. Then, simplify.

a) $(7v)(-7v - 7x)$

b) $(-4x)(-7 + 3y)$

d) $\left(\frac{a}{4}\right)(6a - 4)$

A rectangular pool has a length 2 m shorter than twice its width.

a) Write an expression to determine the pool's perimeter. What is its perimeter?

At a restaurant, the menu included the following choices:

Menu	
Coffee	$3.50
Soup of the Day	$5.95
Garden Salad	$6.95
Catch of the Day	Market Value
Cheesecake	$7.75

a) Sheeyin and Kaitlin each order coffee, soup, a garden salad, the catch of the day, and cheesecake. Write a simplified expression to show the total cost for their meals.

b) Write an expression to calculate a 15% tip on the total for the meal.

c) The catch of the day cost $14.95. What was the total bill, including the tip?

Check Your Understanding

Solve.

a) $(-6a)(-4a)$ b) $(24x)\frac{x}{2}$

c) $\frac{20x^2}{-x}$ d) $-32ac \div -8ac$

Write an expression for the area of each shape. What is the simplified expression for the area of each shape?

a)

4x

12x

b)

3h

4b

. A load of topsoil has a volume of 7.5 m³. You wish to spread the topsoil over an area measuring $(30x + 22.5)$ m². Create an expression for the depth of the topsoil.

A triangle has a base of $(3x + 6)$ cm and a height of 24x mm. Write an expression you can use to calculate the area of the triangle. What is its area?

. The formula for the volume of a cylinder is $V = \pi r^2 h$. The volume of a cylinder is 510.5π cm³, and its height is 6.5 cm. Calculate the approximate radius of the cylinder.

. Divide.

a) $\frac{-36y^2 + 10.8y}{6y}$

b) $\frac{4s^2 - 8st + 12s}{-8s}$

c) $-(8.1d^2 - 7.2d + 3.6) \div (9)$

d) $(-y^2 - yz - y) \div (-y)$

Use the distributive property to expand each expression.

a) $(5m)(2m + 3)$

b) $(-n)(n + 1)$

c) $(1.3x)(2x - 5)$

d) $(-m + 2)(3m)$

e) $(4.1k - 5.3)(-3k)$

Multiply.

a) $(4m + 1)(3m)$

b) $(2x - 3)(-4x)$

c) $(4.2n)(2n - 7)$

d) $\left(\frac{2}{3}m + 4\right)(-9m)$

e) $\left(\frac{-4}{3}x\right)(6x - 12)$

The length of a cement pad on a playground is 3 m longer than the width. The width is $5x$ m.

a) Write an expression for the area of the cement pad.

b) If $x = 2$ m, what is the area of the cement pad?

Divide.

a) $\dfrac{15x^2 - 20x}{5x}$

b) $\dfrac{16m^2 + 20mn}{4m}$

c) $\dfrac{18k^2 - 9k}{9k}$

d) $\dfrac{12m + 18mn}{-6m}$

e) $\dfrac{1.4d^2 + 1.8dk - 1.6d}{2d}$

f) $\dfrac{9c^2 - 12c + 6}{-3}$

You are decorating the bulletin board in your classroom with pictures of your classmates. Each picture covers an area of $4x$ cm². The area of the board is $4x^2 + 16x$ cm². Write an expression to represent how many pictures are required to cover the board.

A rectangular lawn has a width of $3x$ m. The area is $15x^2 + 45x$ m². You wish to put a fence around the lawn.

a) What is an expression to represent the perimeter of the lawn?

b) You are placing a post every 2 m. Find an expression to represent how many posts will be required.