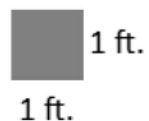
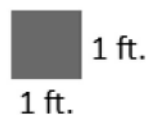
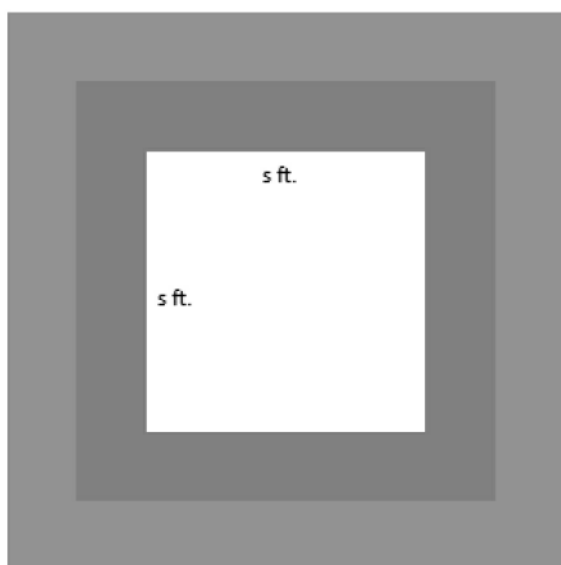


Name \_\_\_\_\_

Date \_\_\_\_\_

## Writing Products as Sums and Sums as Products

A square fountain area with side length  $s$  ft. is bordered by two rows of square tiles along its perimeter as shown. Express the total number of grey tiles (only in the second rows) needed in terms of  $s$  three different ways.



1.

- a. Write two equivalent expressions that represent the rectangular array below.



- b. Verify informally that the two equations are equivalent using substitution.

2. You and your friend made up a basketball shooting game. Every shot made from the free throw line is worth 3 points, and every shot made from the half-court mark is worth 6 points. Write an equation that represents the total amount of points,  $P$ , if  $f$  represents the number of shots made from the free throw line, and  $h$  represents the number of shots made from half-court. Explain the equation in words.

3. Use a rectangular array to write the products in standard form.

- a.  $2(x + 10)$   
b.  $3(4b + 12c + 11)$

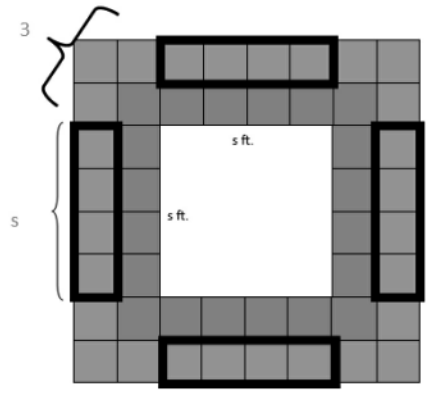
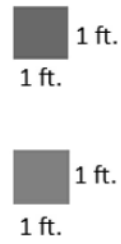
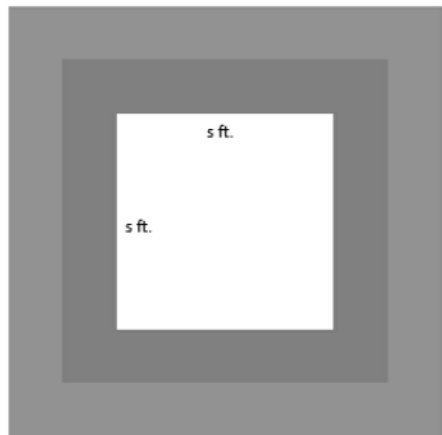
4. Use the distributive property to write the products in standard form.

- a.  $3(2x - 1)$                       g.  $(40s + 100t) \div 10$   
b.  $10(b + 4c)$                       h.  $(48p + 24) \div 6$   
c.  $9(g - 5h)$                       i.  $(2b + 12) \div 2$   
d.  $7(4n - 5m - 2)$                       j.  $(20r - 8) \div 4$   
e.  $a(b + c + 1)$                       k.  $(49g - 7) \div 7$   
f.  $(8j - 3l + 9)6$                       l.  $(14g + 22h) \div \frac{1}{2}$

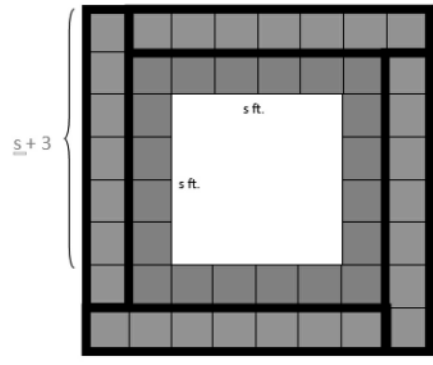
5. Write the expression in standard form by expanding and collecting like terms.

- a.  $4(8m - 7n) + 6(3n - 4m)$   
b.  $9(r - s) + 5(2r - 2s)$   
c.  $12(1 - 3g) + 8(g + f)$

A square fountain area with side length  $s$  ft. is bordered by two rows of square tiles along its perimeter as shown. Express the total number of grey tiles (the second border of tiles) needed in terms of  $s$  three different ways.



$$4s + 4(3)$$

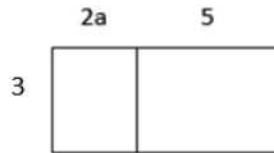


$$4(s+3)$$

or  $s + s + s + s + 12$

1.

- a. Write two equivalent expressions that represent the rectangular array below.



$$3(2a + 5) = 6a + 15$$

- b. Verify informally that the two equations are equivalent using substitution.

Let  $a = 4$ .

$3(2a + 5)$	$6a + 15$
$3(2(4) + 5)$	$6(4) + 15$
$3(8 + 5)$	$24 + 15$
$3(13) = 39$	$39$

2. You and your friend made up a basketball shooting game. Every shot made from the free throw line is worth 3 points, and every shot made from the half-court mark is worth 6 points. Write an equation that represents the total amount of points,  $P$ , if  $f$  represents the number of shots made from the free throw line, and  $h$  represents the number of shots made from half-court. Explain the equation in words.

$$P = 3f + 6h \text{ or } P = 3(f + 2h)$$

*The total number of points can be determined by multiplying each free throw shot by 3 and then adding that to the product of each half-court shot multiplied by 6.*

*The total number of points can also be determined by adding the number of free throw shots to twice the number of half-court shots and then multiplying the sum by three.*

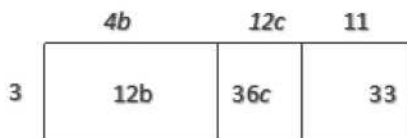
3. Use a rectangular array to write the products in standard form.

- a.  $2(x + 10)$



$$2x + 20$$

- b.  $3(4b + 12c + 11)$



$$12b + 36c + 33$$

4. Use the distributive property to write the products in standard form.

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

g.  $(40s + 100t) \div 10$   
 $4s + 10t$

b.  $10(b + 4c)$   
 $10b + 40c$

h.  $(48p + 24) \div 6$   
 $8p + 4$

c.  $9(g - 5h)$   
 $9g - 45h$

i.  $(2b + 12) \div 2$   
 $b + 6$

d.  $7(4n - 5m - 2)$   
 $28n - 35m - 14$

j.  $(20r - 8) \div 4$   
 $5r - 2$

e.  $a(b + c + 1)$   
 $ab + ac + a$

k.  $(49g - 7) \div 7$   
 $7g - 1$

f.  $(8j - 3l + 9)6$   
 $48j - 18l + 54$

l.  $(14g + 22h) \div \frac{1}{2}$   
 $28g + 44h$

5. Write the expression in standard form by expanding and collecting like terms.

a.  $4(8m - 7n) + 6(3n - 4m)$   
 $8m - 10n$

b.  $9(r - s) + 5(2r - 2s)$   
 $19r - 19s$

c.  $12(1 - 3g) + 8(g + f)$   
 $-28g + 8f + 12$