Check

4. Evaluate each pair of expressions. What do you notice?
- **a)** **i)** $7(3 + 8)$
  - **ii)** $7 \times 3 + 7 \times 8$
- **b)** **i)** $5(7 - 2)$
  - **ii)** $5 \times 7 + 5 \times (-2)$
- **c)** **i)** $-2(9 - 4)$
  - **ii)** $(-2) \times 9 + (-2) \times (-4)$

5. Use algebra tiles to show that $5(x + 2)$ and $5x + 10$ are equivalent. Draw a diagram to record your work. Explain your diagram in words.

6. Draw a rectangle to show that $7(4 + s)$ and $28 + 7s$ are equivalent. Explain your diagram in words.

7. Expand.
- **a)** $2(x + 10)$
- **b)** $5(a + 1)$
- **c)** $10(f + 2)$
- **d)** $6(12 + g)$
- **e)** $8(8 + y)$
- **f)** $5(s + 6)$
- **g)** $3(9 + p)$
- **h)** $4(11 + r)$
- **i)** $7(g + 15)$
- **j)** $9(7 + h)$

Apply

8. Expand.
- **a)** $3(x - 7)$
- **b)** $4(a - 3)$
- **c)** $9(h - 5)$
- **d)** $7(8 - f)$
- **e)** $5(1 - s)$
- **f)** $6(p - 2)$
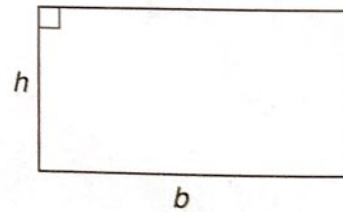- **g)** $8(11 - t)$
- **h)** $2(15 - v)$
- **i)** $10(b - 8)$
- **j)** $11(c - 4)$

9. Write two formulas for the perimeter, P, of a rectangle. Explain how the formulas illustrate the distributive property.

10. Explain how you know $hb = bh$. Use an example to justify your answer

11. Which expression is equal to $9(6 - t)$? How do you know?
- **a)** $54 - 9t$
- **b)** $96 - 9t$
- **c)** $54 - t$

12. Expand.
  a) $-6(c+4)$ b) $-8(a-5)$
  c) $10(f-7)$ d) $3(-8-g)$
  e) $-8(8-y)$ f) $-2(-s+5)$
  g) $-5(-t-8)$ h) $-9(9-w)$

13. **Assessment Focus** Which pairs of
  expressions are equivalent?
  Explain your reasoning.
  a) $2x+20$ and $2(x+20)$
  b) $3x+7$ and $10x$
  c) $6+2t$ and $2(t+3)$
  d) $9+x$ and $x+9$

14. There are 15 players on the Grade 8
  baseball team. Each player needs a
  baseball cap and a team jersey.
  A team jersey costs $25. A baseball cap
  costs $14.
  a) Write 2 different expressions
     to find the cost of supplying the
     team with caps and jerseys.
  b) Evaluate each expression.
     Which expression did you find
     easier to evaluate? Explain.

15. Five friends go to the movies.
  They each pay $9 to get in, and $8 for a
  popcorn and drink combo.
  a) Write 2 different expressions to find
     the total cost of the outing.
  b) Evaluate each expression.
     Which expression was easier to
     evaluate? Justify your choice.

16. Match each expression in Column 1 with
  an equivalent expression in Column 2.

Column 1	Column 2
a) $6(t-6)$	i) $6t+36$
b) $-6(t-6)$	ii) $-6t+36$
c) $-6(t+6)$	iii) $-6t-36$
d) $6(6+t)$	iv) $6t-36$

17. **Take It Further**
  Harvey won some money on a
  scratch-and-win ticket. Then, he won a
  $2 bonus. When he arrived at the counter,
  he noticed that he had also won a "triple
  your winnings" ticket. As Harvey was
  cashing in his prize, the cashier told him
  he was the 100th customer, so his total
  winnings were automatically doubled.
  Write two algebraic expressions to
  describe Harvey's winnings.

18. **Take It Further**
  a) Expand.
     i) $7(5+y-2)$
     ii) $-3(-t+8-3)$
     iii) $-8(-9+s+5)$
     iv) $12(-10-p+7)$
  b) Choose an expression in part a.
     How many different ways can you
     expand the expression?
     Show your work.

19. **Take It Further** Expand.
  a) $2(7+b+c)$ b) $11(-6+e-f)$
  c) $-(-r+s-8)$ d) $-10(-6-v-w)$
  e) $5(j-15-k)$ f) $-4(-g+12-h)$

Check

4. Solve each equation using the distributive property. Verify the solution.

a) $3(x + 5) = 36$

b) $4(p - 6) = 36$

c) $5(y + 2) = 25$

d) $10(a + 8) = 30$

5. Solve each equation. Verify the solution.

a) $-2(a + 4) = 18$

b) $-3(r - 5) = -27$

c) $7(-y + 2) = 28$

d) $-6(c - 9) = -42$