CHAPTER 12

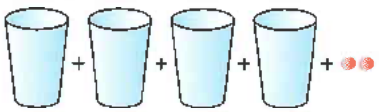
Practice Test

Strand	NSN	MEA	GSS	PA	DMP
Questions	2, 9, 11–13			1–13	

Multiple Choice

For questions 1 to 5, select the correct answer.

1. Which expression does the illustration model?



A $4x + 2$ **B** $2x + 4$
C $4x - 2$ **D** $4 + 2x$

2. The solution to the equation $k - 12 = 15$ is

A 3 **B** 12
C 27 **D** none of the above

3. "Double a number, increased by 5, is 17" can be modelled as

A $n + 2 \times 5 = 17$ **B** $2n + 5 = 17$
C $17 = 2n - 5$ **D** $5n + 17 = 2$

4. Which dot pattern matches the equation $3n + 1 = 22$?

A

B

C

D

5. Which equation could model a number in the pattern 39, 35, 31, ...?

A $4n - 5 = 39$
B $39 - 4n = 17$
C $43 - 4n = 11$
D $42 - 3n = 12$

Short Answer

6. Model each expression using diagrams of cups and counters.

a) $2C + 6$
b) $3C - 2$
c) $7 - C$

7. Model each situation using an equation.

a) Your mother's job takes the same number of hours each day for 5 days. She works a total of 35 h.
b) Your father's job takes the same number of hours each day for 3 days. He works a total of 42 h.
c) \$2 more than 4 times your allowance is \$38.
d) Triple your allowance increased by \$10 gives \$55.

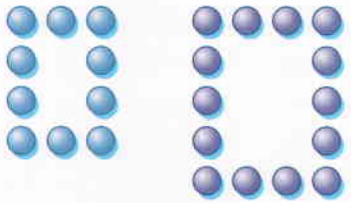
8. Evaluate.

a) $n + 5$ for $n = 7$
b) $3x$ for $x = 10$
c) $8k - 3$ for $k = 2$
d) $12 - b \div 3$ for $b = 30$

9. Solve each equation. Use a method of your choice.

a) $m + 5 = 17$
b) $6k = 18$
c) $4w = 92$
d) $2r - 5 = 19$
e) $15x + 12 = 177$

10. Study this pattern of marbles. Write an equation for the shape that uses 27 marbles.



11. A Mats Sundin collector card sells for $10 more than a Vince Carter card. A Mats Sundin card sells for $75.

a) Write an equation modelling this situation. Explain how you developed the equation.

b) Solve the equation to find the selling price of a Vince Carter collector card.

12. A roll of $2 coins contains 25 coins, or $50. Write and solve an equation to model each situation below. Explain what your variable represents for each situation.

a) The total number of toonies is 175.

b) The total value of the toonies is $350.

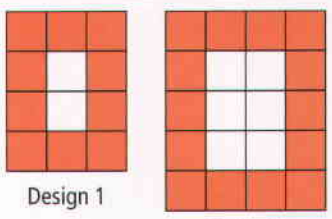
Extended Response

13. Acme Toy Company makes rods from cubes. The cubes are joined end to end as shown and then dipped in paint.

Develop and solve an equation to find the total number of cubes used when 86 faces are painted.

Chapter Problem Wrap-Up

Vicki is planning a set of rectangular tables. Here are her first two designs.



Design 1

Design 2

1. Write a variable expression to model the number of red tiles in this pattern. Explain your method.

2. Design your own table pattern using red and white tiles. Use pictures, words, numbers, and equations to show and discuss your pattern.

Chapter 12

1. **Answer: A (4x + 2)**
2. **Answer: C (k -12 = 15, k = 15 + 12 = 27)**
3. **Answer: B (2*n* + 5 = 17)**
4. **Answer: B (when n = 7, 3 x 7 + 1 = 22, the pattern reflects this)**
5. **Answer: B (39 - 4*n* = 17)**
6. **Ans:**
    a. 2C + 6 → 2 cups and 6 counters
    b. 3C − 2 → 3 cups and remove 2 counters
    c. 7 − C → 7 counters, remove 1 cup
7. **Ans:**
    a. 5h = 35 **b)** 3h = 42 **c)** 4a + 2 = 38 **d)** 3a + 10 = 55
8. **Ans:**
    a. n + 5 for n = 7, 7 + 5 = **12, b)** 3x for x = 10, 3(10) = **30, c)** 8k − 3 for k = 2, 16 − 3 = **13 d)** 12 − b ÷ 3 for b = 30, 12 − (30 ÷ 3) 12 − 10 = **2**
9. **Ans:**
    a. m + 5 = 17, m = 17 - 5, m = 12, **b)** 6k = 18, k = 18/6, k = 3, **c)** 4w = 92, w = 92/4, w = 23, **d)** 2r − 5 = 19, 2r = 19 + 5, 2r = 24, r = 24/2, r = 12, **e)** 15x + 12 = 177, 15x = 177-12 = 165, x = 165/15, x = 11
10. The shape increases by 4 marbles each time. Equation: M = 4n + 4, to solve set M equal to 27, 4n + 4 = 27, 4n = 23, no whole-number solution.**There is no shape in this pattern that uses exactly 27 marbles.**
11. **Ans:**
    a. Let v = price of Vince Carter card, Mats card = v + 10
    b. Mats = 75, Equation: v + 10 = 75, v = 75 - 10, v = 65 **Vince Carter card = $65**
12. Toonies in a roll = 25 coins, Let r = number of rolls 25r = # of toonies, M = amount of money, 50r = M
    a. 25r = # of toonies, 25r = 175, r = 175/25, r = 7 rolls
    b. 50r = 350, r=350/50 = 7, r = 7 rolls
13. Painted Cubes Each cube has 6 faces. When joined in a rod, touching faces are not painted. Pattern: painted faces = 4n + 2, Set equal to 86: 4n + 2 = 86 4n =86 - 2, 4n = 84, n =84/4, n = 21, **21 cubes were used.**