Master 1.21   **Extra Practice 1**

Lesson 1: Number Patterns and Pattern Rules

1. Fill in the missing terms in the patterns.

   a) 3, 6, 9, 12, 15, ____, ____, ____...

   b) 1, 3, 6, 10, 15, ___, ____, ____...

   c) 50, 48, 46, 44, 42, ___, ____, ____...

   d) 3, 6, 4, 7, 5, ___, ____, ____...

2. What is the 10th term of this pattern?
   Start at 15. Alternately take away 2, then add 3.

3. Find each missing term. Describe the pattern.

   a) 2, 4, 6, 8, __, 12, 14…

   b) 2, 4, 3, 5, 4, __, 5, 7…

   c) 26, 23, 20, __, 14…

   d) 2, 102, 202, 302, ____, 502…

4. Use counters to show one of the patterns in question 3.
   Predict the next 3 terms.
   Use counters to check your predictions.

5. Write two patterns that start: 3, 6,…
   For each pattern, list the first 7 terms and write the pattern rule.
   Show your work.

6. What is the 7th term in this pattern?
   Start at 24. Alternately subtract 6 and add 2.
   Show your work.

Master 1.22 **Extra Practice 2**

Lesson 2: Using Patterns to Solve Problems

1. Continue the pattern.

Object	Number of Containers
2	4
3	7
4	10
5	13
6	16

2. During Canada Day celebrations, 4 fireworks are launched in ten seconds. If this continues, when will 32 fireworks have been launched? Make a table to record the pattern. Solve the problem.

3. Ethan earns $8.25 for each hour he works at a bottle return depot. He wants to buy a new bike helmet that will cost about $60. How many hours will Ethan need to work in order to buy the new helmet?

   Make a table to record the pattern. Solve the problem.

4. How many squares are in this shape?
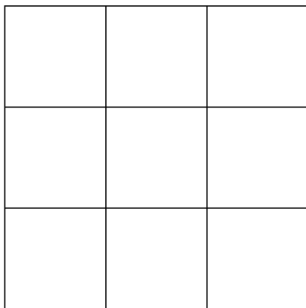
Master 1.23   **Extra Practice 3**

Lesson 3: Using a Variable to Describe a Pattern

1. Complete the table.

Object	Number of containers	Term Value
1	4	4 = 1 + 3
2	5	5 =
3	6	
4	7	
5	8	
6	9	

2. What is the expression for the pattern shown in the table in question 1?

3. Write a story problem that matches the expression you wrote for question 2.

4. Complete the table.

Term Number	Term Value
1	100
2	99
3	98
4	97
5	
6	

5. Write an expression for the pattern shown in question 4.

6. Write a word problem that matches the pattern in question 4.

Master 1.24 **Extra Practice 5**

Lesson 5: Using a Variable to Write an Equation

1. Which of the following statements are equations? How do you know?

   a) $4 + 2$ b) $12 - 6 = n$ c) $100 + y$ d) $14 = 24 - r$

2. A local animal shelter has 12 kittens for adoption. Some are adopted on Monday and some on Tuesday. On Wednesday there are 2 kittens left. How many kittens were adopted on Monday and Tuesday?

   Which equation below represents the problem?

   a) $12 \times 2 = 24$
   b) $10 = 12 - 2$
   c) $12 - k = 2$
   d) $12 \div 2 = k$

   Write two equations for each of the following questions.

3. Tessa borrowed 3 books from the library on Monday, and some more books later that week. She returned all 12 books at the end of the week. How many books did Tessa borrow later that week?

4. Luigi read 38 pages of his novel each day for a week. How many pages did he read altogether that week?

5. Mohsan shared his box of strawberries with 5 friends. They each received 15 strawberries. How many were in Mohsan's box originally?

6. Terry Lee shared 63 pencils among a group of 9 students. How many pencils did each student receive?

Master 1.25   **Extra Practice 6**

Lesson 6: Solving Equations Involving Addition and Subtraction

1. Solve each equation.

   a) $10 = n + 7$

   b) $p - 5 = 15$

   c) $6 + d = 18$

   d) $25 = 100 - r$

2. Write two equations for each sentence.

   a) There were some stamps in a stamp book. Elsie used 2 stamps, leaving 48 stamps. How many stamps were originally in the stamp book?

   b) Contractors laid out a 100 m² grid for a new school playground area. The super-slide will use 42 m². What area is left for the rest of the playground?

3. Solve each equation in question 2.

4. Write a word problem to match each equation below.

   a) $144 - d = 100$

   b) $38 = b + 12$

   c) $b = 99 + 1$

   d) $22 - 10 = m$

Master 1.26   **Extra Practice 7**

Lesson 7: Solving Equations Involving Multiplication and Division

1. Solve each equation.

   a) $2 \times g = 4$

   b) $30 \div c = 3$

   c) $10 = t \div 10$

   d) $144 = 12 \times p$

2. Write two equations for each sentence.

   a) Nic had 6 cases of cat food. Altogether, she had 72 cans of cat food. How many cans were in each case?

   b) Ray went to a local theme park. He bought 5 ribbons of collector pins. Each ribbon held 12 pins. How many collector pins did Ray have in total?

3. Solve each equation in question 2.

4. Write a problem to match the equations below.

   a) $2 \times c = 26$

   b) $144 \div 12 = b$

   c) $88 \div f = 11$
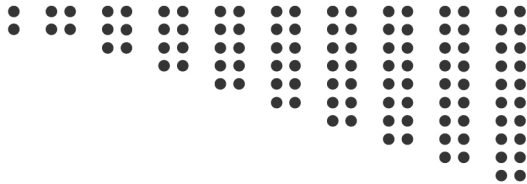
   d) $200 = l \times 25$

Master 1.27   # Extra Practice Sample Answers

Extra Practice 1 – Master 1.21

Lesson 1: Number Patterns and Pattern Rules

1. **a)** 18, 21, 24…
   b) 21, 28, 36…
   c) 40, 38, 36…
   d) 8, 6, 9...
2. 17
3. **a)** 10; Start at 2. Add 2 each time.
   b) 6; Start at 2. Alternately add 2 then subtract 1.
   c) 17; Start at 26. Subtract 3 each time.
   d) 402; Start at 2. Add 100 each time.
4. **a)** For example:

   The next 3 terms are 16, 18, 20...
5. Patterns will vary. For example:
   3, 6, 9, 12, 15, 18, 21…; start at 3 and add 3 each time.
   3, 6, 5, 8, 7, 10, 9 …; start at 3 and alternately add 3 and subtract 1.
6. 12.

Extra Practice 2 – Master 1.22

Lesson 2: Using Patterns to Solve Problems

1.

Object	Number of Containers
2	4
3	7
4	10
5	13
6	16
7	19
8	22
9	25

2.

Seconds	Number of Fireworks
10	4
20	8
30	12
40	16
50	20
60	24
70	28
80	32

It will take 80 s or 1 min and 20 s to launch 32 fireworks.

3.

Hours	Dollars per Hour
1	$8.25
2	$16.50
3	$24.75
4	$33.00
5	$41.25
6	$49.50
7	$57.75
8	$66.00

Ethan will have to work 8 h to make enough money to buy a new helmet.
4. 14 squares

Extra Practice 3 – Master 1.23

Lesson 3: Using a Variable to Describe a Pattern

1.

Object	Number of containers	Term Value
1	4	4 = 1 + 3
2	5	5 = 2 + 3
3	6	6 = 3 + 3
4	7	7 = 4 + 3
5	8	8 = 5 + 3
6	9	9 = 6 + 3

2. $t + 3$
3. Word problems will vary. For example: Six trucks were loaded with containers for a trip to Yellowknife. Truck number 1 held 4 containers. Each time another truck was loaded it held one more container than the truck before.

4.

Term Number	Term Value
1	100
2	99
3	98
4	97
5	96
6	95

5. $101 - t$
6. For example: A bag of buttons had a mass of 101 g. Each time I removed a button, the mass of the bag decreased by 1 g.

Extra Practice 5 – Master 1.24

Lesson 5: Using a Variable to Write an Equation

1. b) and **d)**; Explanations will vary. For example: An equation is a mathematical sentence with an equal sign.
2. c)

Equations may vary.
3. $t + 3 = 12$; $12 - t = 3$
4. $p = 7 \times 38$; $38 \times 7 = p$
5. $5 \times 15 = s$, $s \div 5 = 15$
6. $p = 63 \div 9$; $p \times 9 = 63$

Extra Practice 6 – Master 1.25

Lesson 6: Solving Equations Involving Addition and Subtraction

1. a) $n = 3$ **b)** $p = 20$
    c) $d = 12$ **d)** $r = 75$
2. a) $s = 48 + 2$; $48 = s - 2$
    b) $100 - 42 = p$; $p + 42 = 100$
3. a) $s = 50$
    b) $p = 58$
4. Word problems will vary. For example:
    a) My school had 12 dozen eggs for sale. We sold some, but had 100 eggs left. How many did we sell?
    b) I had some books on my bookshelf. When I added 12 books, I had 38 altogether. How many books did I have originally?
    c) There were 99 red balloons. One more was added. How many balloons were there then?
    d) Ryan had 22 skater magazines. He sold 10 magazines online. How many magazines did he have left?

Extra Practice 7 – Master 1.26

Lesson 7: Solving Equations Involving Multiplication and Division

1. a) $g = 2$ **b)** $c = 10$
    c) $t = 100$ **d)** $p = 12$
2. a) $6 \times c = 72$; $72 \div c = 6$
    b) $5 \times 12 = r$; $r \div 5 = 12$
3. a) $c = 12$
    b) $r = 60$
4. Word problems will vary. For example:
    a) Melissa and Abigail ate the same number of crabs during the feast. The total number they ate was 26. How many did they each have?
    b) Lynne had 144 pencils in 12 boxes. Each box contained the same number of pencils. How many were in each box?
    c) An office building had 11 floors. Each floor had the same number of light fixtures. There were 88 light fixtures in total. How many light fixtures were on each floor?
    d) Blair scored 200 points in a video game. He scored 25 points on each level. How many levels did he play to score 200 points?