Name: _____ Date: _____

Chapter 1: Patterns in Mathematics

1. Look at this pattern.

a) Describe the pattern by telling how each item changes.

_____

_____

b) Sketch the next 3 shapes.

Pattern Rules

A pattern rule describes how a pattern starts and how it continues. For example, a pattern rule is "start at 12 and add 3": 12, 15, 18, 21 ...

Increasing and Decreasing Patterns

Increasing patterns grow. For example, the pattern 14, 16, 18, 20 ... starts at 14 and increases by 2 each time.

Decreasing patterns shrink. For example, the pattern 20, 18, 16, 14 ... starts at 20 and decreases by 2 each time.

2. A pattern starts at 62 and increases by 4 each time.
   Write 6 numbers in this pattern. _____

3. A pattern starts at 71 and decreases by 3.
   Write 6 numbers in this pattern. _____

4. A pattern rule is "start at 70 and subtract 5 each time."
   What is the 5th number in the pattern? _____

5. Write the missing numbers and the pattern rule.

   45, 49, 53, 57, _____, 65, _____, ...

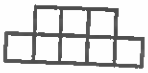
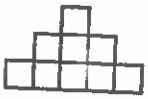
Symbols for Missing Numbers

You can use a symbol to represent a missing number in an equation. For example, the equation ___ + 9 = 21 can be read, "What number plus 9 equals 21?" The missing number is 12.

6. What is the missing number in each equation?

   a) ___ + 7 = 14 **b)** ___ − 9 = 20

Ann and Joan are building towers with blocks. Follow each pattern to add the next set of blocks.

Tower	Step 1	Step 2	Step 3	Step 4
A				
B				
C				

⑱

⑲

⑳

㉑ Complete the chart to show the number of blocks used to build each step of tower A.

4	6	8					

㉒ How many blocks are used in the 10th step to build tower A?

Answer: _____

㉓ Complete the chart to show the number of blocks used to build each step of tower B.

1	4	9					

㉔ How many blocks are used in the 10th step to build tower B?

Answer: _____

㉕ Complete the chart to show the number of blocks used to build each step of tower C.

1	3	6					

㉖ How many blocks are used in the 10th step to build tower C?

Answer: _____

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C&P Name: _____ Date: _____

1.1 Patterns in an Addition Table Page 1

Student Book pages 4–6

GOAL

Identify, describe, and complete patterns in an addition table.

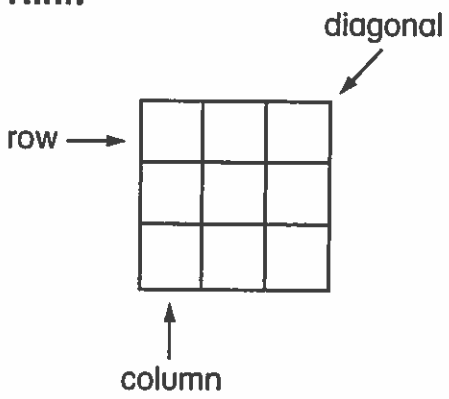
Checking

1. Complete the addition table using patterns.

   Use a pattern from a row, a column, and a diagonal.

+	2	4	6	8	10	12	14
2	4	6	8	10	12		
4	6		10		14	16	
6	8	10	12		16	18	
8		12		16		20	22
10			16		20	22	
12	14		18		22	24	26
14	16	18				26	

Hint:



Step 1: Look at the first row.

What do you add to 2 to get 4? _____

What do you add to 4 to get 6? _____

Write the pattern rule. _____

Complete the first row.

Step 2: Look at the first column.

What do you add to 4 to get 6? _____

What do you add to 6 to get 8? _____

Write the pattern rule. _____

Complete the first column.

Step 3: Use patterns to complete the addition table.

C&P Name: _____ Date: _____

1.1 Patterns in an Addition Table Page 2

Practising

2. Complete the addition table using patterns.

Use a pattern from a row, a column, and a diagonal.

+	2	4	6	8	10	12	14
1	3	5	7	9		13	
3	5	7		11	13	15	17
5	7	9	11	13	15		19
7		11	13		17	19	21
9			15		19	21	
11	13			19	21		25
13		17				25	

Step 1: Use a pattern from a row.

Look at the first row.

Write the pattern rule. _____

Complete the first row.

Step 2: Use a pattern from a column.

Look at the first column.

Write the pattern rule. _____

Complete the first column.

Step 3: Complete the rest of the addition table.

Name: _____ Date: _____

Addition Tables Page 1

Lesson 1: Patterns in an Addition Table

STUDENT BOOK PAGES 4–6

Teaching and Learning

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2		3	4		6	7		9		11
3	3	4	5	6	7	8	9	10	11	
4		5		7	8	9	10	11	12	13
5	5	6	7		9	10	11	12	13	14
6	6	7		9	10		12	13	14	
7	7	8	9	10		12	13	14	15	16
8		9	10		12		14	15	16	17
9	9	10	11	12	13		15	16	17	18

Question 1

+	2	4	6	8	10	12	14
2	4	6	8	10	12		
4	6		10		14	16	
6	8	10	12		16	18	
8		12		16		20	22
10			16		20	22	
12	14		18		22	24	26
14	16	18				26	

Name: _____ Date: _____

Addition Tables Page 2

Lesson 1: Patterns in an Addition Table

STUDENT BOOK PAGES 4–6

Question 2

+	2	4	6	8	10	12	14
1	3	5	7	9		13	
3	5	7		11	13	15	17
5	7	9	11	13	15		19
7		11	13		17	19	21
9			15		19	21	
11	13			19	21		25
13		17				25	

Question 3

+	10	20	30	40	50	60	70
1	11		31	41	51		71
2	12	22	32		52	62	
3	13		33		53	63	73
4	14	24		44		64	
5			35		55	65	
6	16			46	56		76
7		27	37		57	67	

Name: _____ Date: _____

Chapter 1 Lesson 1

Patterns in an Addition Table

GOAL

Identify, describe, and complete patterns in an addition table.

1. a) Complete the shaded column, row, and diagonal in this addition table using patterns.

+	2	4	6	8	10	12	14
1	3	5	7	9	11	13	15
2	4		8		12	14	
3	5	7	9	11	13	15	17
4	6		10	12	14		18
5	7		11	13	15	17	19
6	8	10	12	14	16	18	20
7	9	11		15	17	19	21

At-Home Help

A **pattern rule** describes how a pattern starts and how it continues. For example:

- For the pattern 2, 4, 6, 8, ..., here is the pattern rule: Start with 2 and add 2 each time.
- For the pattern 16, 14, 12, 10, ..., here is the pattern rule: Start with 16 and subtract 2 each time.

b) Describe the patterns you used. _____

_____

_____

2. Complete this addition table using patterns. Use at least one pattern from a row, a column, and a diagonal.

+	0	1	2	3	4	5	6
1	1	2	3		5	6	7
3	3		5	6	7		9
5	5	6	7	8		10	
7		8	9		11	12	13
9	9		11	12		14	15
11	11	12	13	14	15		17
13	13			16		18	

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Use 3 colours and make a pattern
Explain the pattern rule for each colour

☐ pattern rule:
☐ pattern rule:
☐ pattern rule:

C&P Name: _____ Date: _____

1.2 Extending Patterns in Tables Page 1

Student Book pages 8–11

GOAL

Use tables to identify and extend patterns.

Checking

1. a) Kate wants to make 6 inuksuit.

- 1 inuksuk uses 6 large rocks.
- 2 inuksuit use 6 + 6 = _____ large rocks.
- 3 inuksuit use 6 + 6 + 6 = _____ large rocks.

Complete the pattern: 6, _____, _____, ...

Complete the table.

Large Inuksuk Rocks	
Number of inuksuit	Total number of large rocks
1	6
2	
3	
4	
5	
6	

Kate has 26 large rocks.

Does she have enough to make 6 inuksuit? _____

How do you know?

_____

_____

b) Look at the second column.

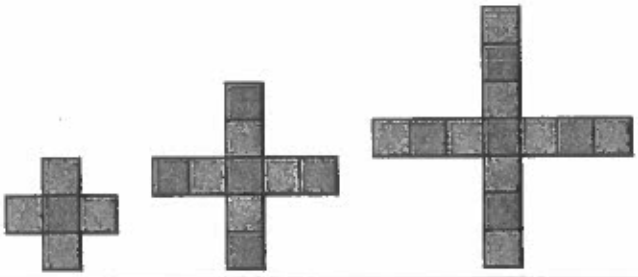
Write the pattern rule. _____

C&P Name: _____ Date: _____

1.2 Extending Patterns in Tables Page 2

Practising

3. Joshua made this shape pattern.



shape 1 shape 2 shape 3

a) Complete the table to describe the pattern.

Shape Squares	
Shape number	Number of squares in the shape
1	
2	
3	
4	
5	
6	

How many squares will be in shape 6? _____

b) Look at the second column.

Write the pattern rule. _____

L Name: _____ Date: _____

1.2 Extending Patterns in Tables Page 1

Student Book pages 8–11

GOAL

Use tables to identify and extend patterns.

You will need

- pattern blocks

Problem

An inuksuk is a marker or signpost made of rocks.

Kate modelled an inuksuk using pattern blocks.

She wants to know how many square blocks she will need to make 3 more inuksuit.

Inuksuk (plural: Inuksuit)

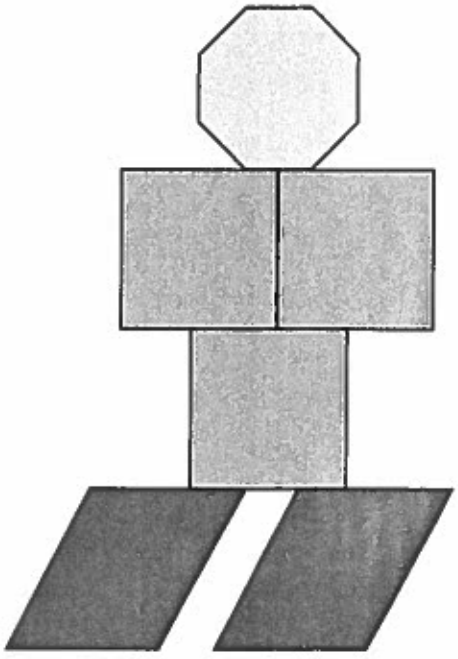
How many square blocks does Kate need?

Step 1: Make 3 inuksuit like Kate's.

Step 2: Count the number of square blocks you used to make 1 inuksuk.

Write this number in the table.

Kate's Inuksuk



Inuksuk Blocks	
Number of inuksuit	Number of square blocks
1	
2	
3	
4	

Step 3: Count the number of square blocks you used to make 2 inuksuit.

Write this number in the table.

Step 4: Count the number of square blocks you used to make 3 inuksuit.

Write this number in the table.

L Name: _____ Date: _____

1.2 Extending Patterns in Tables Page 2

Step 5: Describe the pattern in the second column.

_____

_____

_____

_____

Step 6: Use this pattern to write the number of square blocks you need to make 4 inuksuit.

Reflecting

How did the table help you solve the problem?

_____

_____

_____

_____

Name: _____ Date: _____

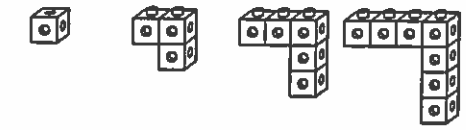
Chapter 1
Lesson 2

Extending Patterns in Tables

GOAL

Use tables to identify and extend patterns.

1. Lang made this pattern out of linking cubes.



Shape 1 Shape 2 Shape 3 Shape 4

Lang's Pattern

Shape number	Number of cubes
1	1
2	3
3	
4	

a) Write the number of cubes for Shape 3 and Shape 4 in the table.

b) Describe the pattern in the 2nd column of the table.

_____

_____

_____

c) How many cubes will be in shape 6?

_____ cubes

2. Julia is making models of trees using blocks. She has 25 blocks. Can she make 6 trees?

_____

Julia's Trees

Number of trees	Total number of blocks
1	
2	
3	

At-Home Help

Follow these steps to help you identify patterns using tables:

1. Use the model of the pattern to make a table.
2. Look for a pattern in the 1st column.
3. Look for a pattern in the 2nd column.

Model number	Number of blocks
1	2
2	5 (+3)
3	8 (+3)

4. If you see a pattern, use it to fill in the next row. If you don't see a pattern, use the model to help you fill in 1 or 2 more rows. Then follow these steps again.

Solve the problems. Show your work.

5, 10, 15, 20, 25, 30, ___, ___, ___, ___

27 What is the rule for this pattern?

Answer: _____

28 What are the next 4 numbers?

Answer: _____

256, 258, 260, 262, 264, ___, ___, ___, ___

31 What is the rule for this pattern?

Answer: _____

32 What are the next 4 numbers?

Answer: _____

120, 110, 100, 90, 80, 70, ___, ___, ___, ___

29 What is the rule for this pattern?

Answer: _____

30 What are the next 4 numbers?

Answer: _____

919, 819, 719, 619, 519, ___, ___, ___, ___

33 What is the rule for this pattern?

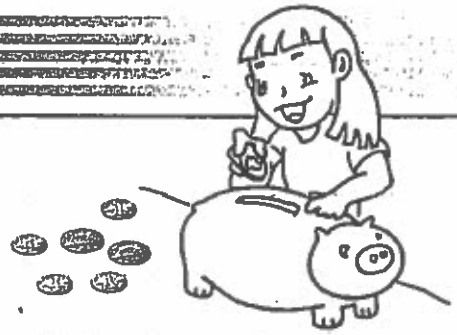
Answer: _____

34 What are the next 4 numbers?

Answer: _____

CHALLENGE

Joan puts 12¢ in her piggy bank every day.



① How much has Joan saved on the 6th day?

Answer: _____

② How long will Joan take to have $1.20?

Answer: _____

1st day 12¢
+ 12¢
2nd day 24¢
+ 12¢
3rd day 36¢

Read this first.

Follow the pattern to find the answers.

L Name: _____ Date: _____

1.3 Representing Patterns Page 1

Student Book pages 12–14

GOAL

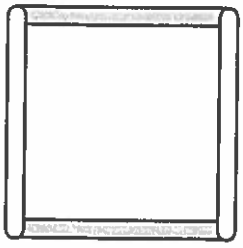
Use models to represent and extend patterns.

You will need

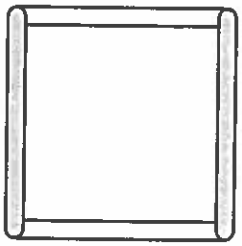
- craft sticks

Problem

Lang is making squares with craft sticks.



How many craft sticks does Lang need to make 8 squares?



Step 1: Make 8 squares like Lang's.

Step 2: Count the number of sticks you used to make 1 square.
Write that number in the table.

Craft Stick Squares

Number of squares	Number of craft sticks
1	4
2	
3	
4	
5	
6	
7	
8	

Step 3: Count the number of sticks you used to make 2 squares.
Write that number in the table.

Step 4: Complete the table.
Model each square and count the number of sticks you used.
How many sticks does Lang need to make 8 squares? _____

L Name: _____ Date: _____

1.3 Representing Patterns Page 2

Reflecting

Describe the pattern in the second column.

_____

_____

_____

_____

How do the models and the table show the same information?

_____

_____

_____

_____

C&P Name: _____ Date: _____

1.3 Representing Patterns Page 2

Practising

4. Bree is making 5-sided frames.

She wants to know how many sticks she needs to make 7 frames.

She uses a model and a table to find out.

My Frames

Number of frames	Total number of sticks
1	5
2	10
3	15
4	21
5	26
6	31
7	36

Bree made some mistakes in her model and table.

a) Describe a mistake in Bree's model.

_____

_____

Describe a mistake in Bree's table.

_____

_____

b) Was it easier to see the mistakes in the model or in the table? _____

Why?

_____

_____

Name: _____ Date: _____

Chapter 1
Lesson 3

Representing Patterns

GOAL

Use models to represent and extend patterns.

You will need 20 toothpicks.

1. Cara is making triangles with toothpicks.

a) Model the pattern in the table using toothpicks or a sketch.

b) Describe how the model changes.

Cara's Pattern

Number of triangles	Total number of toothpicks
1	3
2	6
3	9

At-Home Help

You can make a model to represent a pattern in a table.

My Pattern

Number of squares	Total number of toothpicks
1	4
2	8
3	12

Use 4 toothpicks to model the first square. Then add 4 more toothpicks each time.

_____

c) Cara has 20 toothpicks. How many triangles can she make?

_____ triangles

2.

Owen is making a different triangle pattern.

a) Model the pattern in the table.

b) How many triangles can Owen make with 10 toothpicks?

_____ triangles

Owen's Pattern

Number of triangles	Total number of toothpicks
1	3
2	5
3	

Name: _____ Date: _____

Chapter 1
Lesson 3

Representing Patterns

GOAL

Use models to represent and extend patterns.

You will need 20 toothpicks.

1. Cara is making triangles with toothpicks.

a) Model the pattern in the table using toothpicks or a sketch.

b) Describe how the model changes.

_____

Cara's Pattern

Number of triangles	Total number of toothpicks
1	3
2	6
3	9

At-Home Help

You can make a model to represent a pattern in a table.

My Pattern

Number of squares	Total number of toothpicks
1	4
2	8
3	12

Use 4 toothpicks to model the first square. Then add 4 more toothpicks each time.

c) Cara has 20 toothpicks. How many triangles can she make?

_____ triangles

2.

Owen is making a different triangle pattern.

a) Model the pattern in the table.

b) How many triangles can Owen make with 10 toothpicks?

_____ triangles

Owen's Pattern

Number of triangles	Total number of toothpicks
1	3
2	5
3	

Look at the table showing how tall Ann's flowers have grown. Answer the questions.

Flower	Week 1	Week 2	Week 3	Week 4
	5 cm	10 cm	15 cm	20 cm
	2 cm	4 cm	6 cm	8 cm
	4 cm	8 cm	12 cm	16 cm

⑨ Describe the growing pattern of  .

Answer: It grows every week.

⑩ Find the height of  in week 6.

Answer:

⑪ Describe the growing pattern of  .

Answer:

⑫ Find the height of  in week 6.

Answer:

⑬ Describe the growing pattern of  .

Answer:

⑭ Find the height of  in week 6.

Answer:

⑮ How long will  take to reach a height of 35 cm?

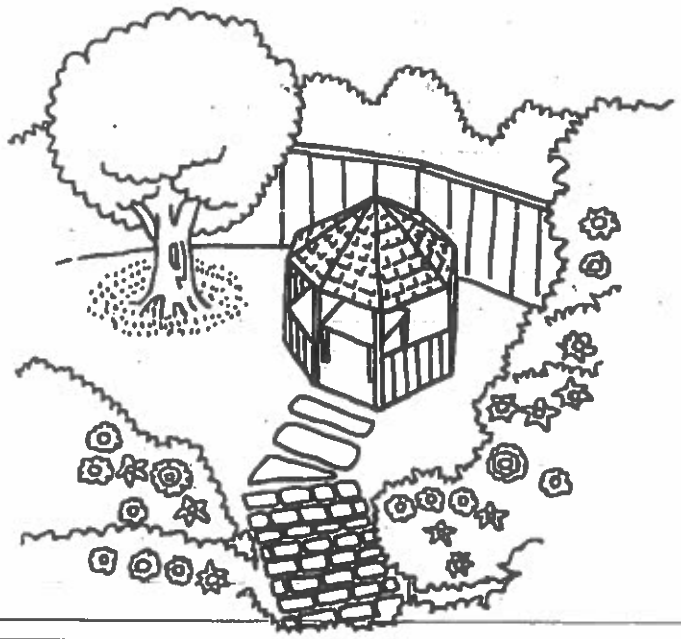
Answer:

⑯ How long will  take to reach a height of 12 cm?

Answer:

⑰ How long will  take to reach a height of 28 cm?

Answer:



ISBN: 978-1-897164-13-6

L Name: _____ Date: _____

1.4 Solving Problems Using Patterns Page 1

Student Book pages 18–19

GOAL

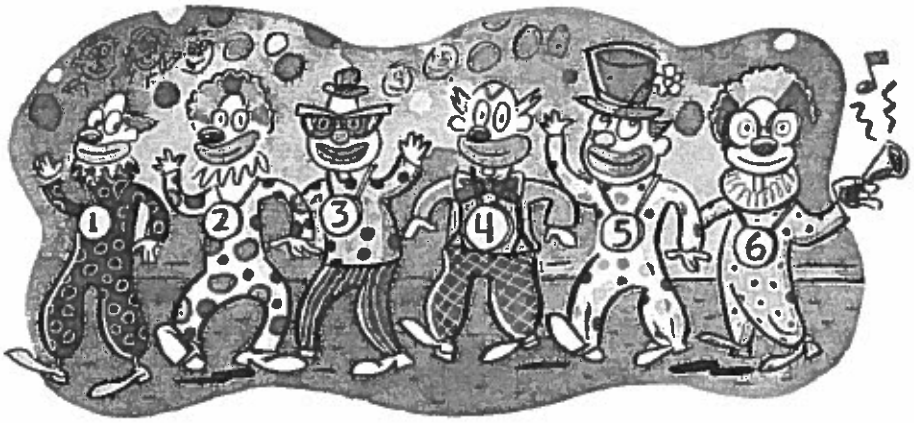
Use a pattern in a chart to solve a problem.

Problem

Here comes a parade of

100 clowns!

Every 3rd clown wears glasses.



How many clowns wear glasses?

Use a 100 chart.

1	2	(3)	4	5	(6)	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

L Name: _____ Date: _____

1.4 Solving Problems Using Patterns Page 2

Step 1: Circle every 3rd number.

The first two have been circled for you.

Step 2: How many numbers are circled? _____

Step 3: How many clowns wear glasses? _____

Reflecting

How did using a pattern help you solve the problem?

_____

_____

_____

_____

C&P Name: _____ Date: _____

1.4 Solving Problems Using Patterns Page 1

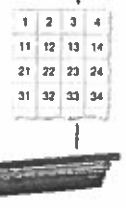
Student Book pages 18–19

GOAL

Use a pattern in a chart to solve a problem.

You will need

- a 100 chart (blackline master)
- pencil crayons



Checking

1. 100 clowns are in a parade.

Every 5th clown wears a hat.

Every 2nd clown has a red nose.

How many clowns have a hat and a red nose?

Use a 100 chart to show the clowns.

Step 1: Every 5th clown wears a hat.

Mark a blue \ on every 5th number for the first 3 rows.

Step 2: Every 2nd clown wears a red nose.

Mark a red / on every 2nd number for the first 3 rows.

Circle the numbers that have a blue \ and a red /.

Each circle is for a clown that wears a hat and has a red nose.

What pattern do you see?

_____

_____

Continue the pattern for the rest of the chart.

How many clowns wear a hat and have a red nose? _____

C&P Name: _____ Date: _____

1.4 Solving Problems Using Patterns Page 2

Practising

2. 100 clowns are in a parade.

Use a 100 chart to show the clowns.

Every 3rd clown wears glasses.

Mark every 3rd clown with a blue \.

Every 5th clown wears a hat.

Mark every 5th clown with a green /.

a) How many clowns have glasses and a hat? _____

b) Every 2nd clown has a red nose.

Mark every 2nd clown with a red –.

How many clowns have glasses, a hat, and a red nose? _____

3. Shaun walks his dog every 3rd day.

He goes for a run every 4th day.

How many times in a month does Shaun walk his dog and go for a run on the same day? _____

Hint: Mark the days on a calendar.

January						
Sun.	**Mon.**	**Tues.**	**Wed.**	**Thurs.**	**Fri.**	**Sat.**
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Name: _____ Date: _____

Scaffolding for Lesson 4, Questions 2 a) & 4 Page 1

UDENT BOOK PAGE 19

2. a) Every 3rd clown in the parade of 100 clowns wears glasses. Every 5th clown wears a hat. How many clowns have a hat *and* glasses?

Mark the numbers with these symbols:

for glasses ◯

for a hat □

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Can you see a pattern after 3 rows?

Describe the pattern: _____

_____

_____

Cross out every number that you've marked with a circle and a square. How many clowns have a hat *and* glasses?

_____

_____

Name: _____ Date: _____

Scaffolding for Lesson 4, Questions 2 a) & 4

STUDENT BOOK PAGE 19

4. Britney's family went skating together on a Tuesday.

After that, Britney and her brother Liam skated every 2nd day.

Their mother skated every 3rd day.

Their father skated every 4th day.

- Mark the 1st skate date with an X.
- Choose a symbol or colour for Britney and Liam.
  Mark the days after X that they skated.
- Choose another symbol or colour for their mother.
  Mark the days after X that she skated.
- Choose another symbol or colour for their father.
  Mark the days after X that he skated.

On what day of the week did Britney's family next skate together? _____

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 X Family skate	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Name: _____ Date: _____

Blank Calendar

Lesson 4: Solving Problems Using Patterns

STUDENT BOOK PAGE 19

Question 4

Saturday					
Friday					
Thursday					
Wednesday					
Tuesday					
Monday					
Sunday					

Name: _____ Date: _____

Chapter 1
Lesson 4

Solving Problems Using Patterns

GOAL

Use a pattern in a chart to solve a problem.

Michèle put out the recycling bins on September 2 and every 7th day after that.

1. Michèle watered the plants on September 2 and every 5th day after that. Choose a colour and mark the day numbers.

2. Michèle played hockey on September 2 and every 4th day after that. Choose another colour and mark the day numbers.

3. How many times in 100 days did Michèle put out the recycling and water the plants on the same day?

   _____ times

4. How many times in 100 days did Michèle water the plants and play hockey on the same day?

   _____ times

5. How many times in 100 days did Michèle put out the recycling, water the plants, and play hockey on the same day?

   _____ times

100 Days of the School Year

	S	M	T	W	T	F	S
September		1	(2)	3	4	5	6
	7	8	(9)	10	11	12	13
	14	15	(16)	17	18	19	20
	21	22	(23)	24	25	26	27
	28	29	(30)	1	2	3	4
October	5	6	(7)	8	9	10	11
	12	13	(14)	15	16	17	18
	19	20	(21)	22	23	24	25
	26	27	(28)	29	30	31	1
November	2	3	(4)	5	6	7	8
	9	10	(11)	12	13	14	15
	16	17	(18)	19	20	21	22
	23	24	(25)	26	27	28	29
	30	1	(2)	3	4	5	6
	7	8	(9)				

L Name: _____ Date: _____

1.5 Solving Equations Page 1

Student Book pages 20–23

GOAL

Determine the missing number in an **equation**.

equation

A mathematical sentence in which the value of the left side is the same as the value of the right side

Problem

Kate's club is baking and freezing pies for a fundraiser.

They started with 3 pies.

They baked the same number of pies each week.

The number of pies each week made this pattern.

3, 5, 7, 9, 11, ...

How many pies did Kate's club bake each week?

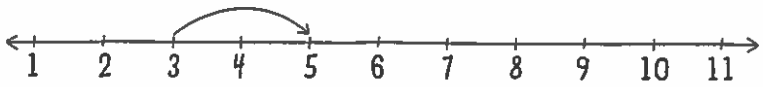
Use an equation to solve the problem.

3 + ☐ = 5

The missing number tells how much the pattern increases each time.

Use a number line to figure out the missing number.

Step 1: Find 3 on the number line.



Step 2: Jump to 5.

Count the spaces from 3 to 5.

How many pies did Kate's club bake each week? _____

Name: _____ Date: _____

1.5 Solving Equations Page 2

Reflecting

How did using a number line help you solve the problem?

_____

_____

_____

_____

What does ☐ mean in Kate's equation?

_____

_____

_____

_____

C&P Name: _____ Date: _____

1.5 Solving Equations Page 1

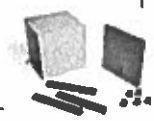
Student Book pages 20–23

GOAL

Determine the missing number in an equation.

You will need

- base ten blocks



Checking

1. Look at this pattern: 77, 73, 69, 65, 61, ...

Model the first two numbers in the pattern with base ten blocks.

Draw your models.

77	73

a) Write an equation to represent how the pattern decreases.

_____

Hint: Draw a square for the missing number.

b) Model your equation with base ten blocks.

Draw your model.

Left side	Right side

Add ones blocks until both sides have the same value.

What is the missing number in your equation? _____

C&P Name: _____ Date: _____

1.5 Solving Equations Page 2

Practising

2. Aaron started with 52 apples.

Each day he put 1 apple in each family member's lunch.

The apples in the case made this pattern: 52, 45, 38, 31, 24, ...

Write the pattern rule. _____

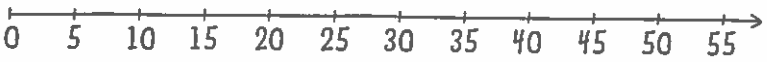
a) How many people are in Aaron's family?

Write an equation to solve the problem.

_____

Hint: The number of apples he gives away each day is the number of people in his family.

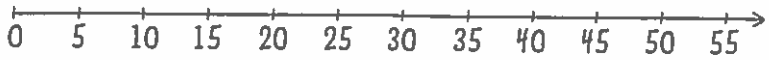
b) Find the missing number using a number line.



How many people are in Aaron's family? _____

5. What is the missing number in each equation?

Use a number line to help you.



a) ☐ + 7 = 16

b) 21 − ☐ = 5

c) ☐ − 9 = 35

d) 6 + 3 = ☐

e) 27 = 11 + ☐

f) 36 + ☐ = 52

Name: _____ Date: _____

Scaffolding for Lesson 5, Questions 2 & 3

STUDENT BOOK PAGE 22

2. Aaron started with a case of 52 apples.
Each day he put one apple in each family member's lunch.
The number of apples in the case made this pattern: 52, 45, 38, 31, 24...

a) How many people are in Aaron's family?
Use an equation with a missing number to solve the problem.

____	–	☐	=	____
1st number in pattern		missing number		2nd number in pattern

b) Model the equation with base ten blocks.
Draw the blocks below.

____	–	☐	=	____
1st number in pattern		missing number		2nd number in pattern

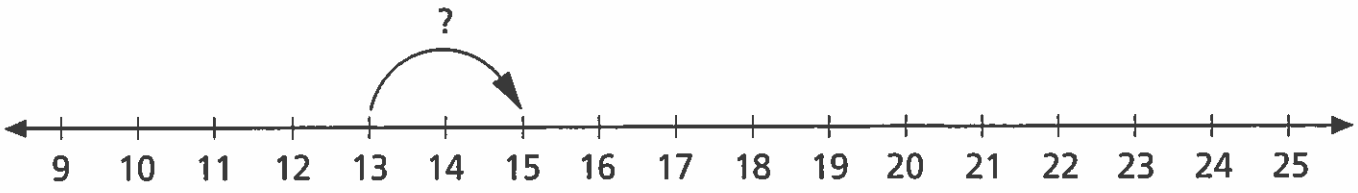
What is the missing number? _____

3. The numbers in this pattern increase by different amounts each time:
9, 11, 14, 18, 23...

The missing numbers in the equations show how the pattern increases.
What are the missing numbers? Use the number line.

a) 9 + ___ = 11 **c)** 14 + ___ = 18

b) 11 + ___ = 14 **d)** 18 + ___ = 23



Name: _____ Date: _____

Chapter 1
Lesson 5

Solving Equations

GOAL

Determine the missing number in an equation.

1. What is the missing number in each equation? Use a number line.

a) 7 + _____ = 17

b) 19 − _____ = 6

c) _____ + 11 = 23

d) 18 + 30 = _____

2. Aneela bakes cookies for her class. The first day, she baked 12 cookies. Every day after school, she bakes more cookies. The number of cookies makes this pattern.

12, 18, 24, 30, ...

a) Write an equation with a missing number to represent how the pattern increases.

_____

b) What is the missing number in your equation?

_____

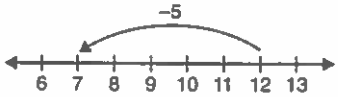
c) How many more cookies does Aneela bake each day?

_____ cookies

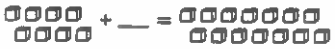
At-Home Help

Here are some ways to figure out the missing number in an equation:

- Use a number line. For example:
  12 − ▢ = 7



  12 − 5 = 7
- Use base ten blocks to model the numbers in the equation. For example:
  8 + ▢ = 14



  8 + 6 = 14

L Name: _____ Date: _____

1.6 Solving Problems with Equations Page 1

Student Book pages 24–26

GOAL

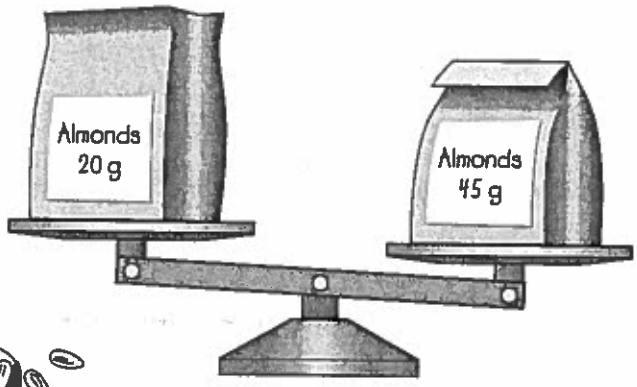
Use equations to solve problems.

Problem

Cole is packaging almonds in 45 g bags.

One bag has 20 g.

Hint: g = grams



How many grams of almonds does Cole need to add to the 20 g bag?

Use an equation to solve the problem.

☐ is the number of almonds

Cole needs to add to the bag.

20 + ☐ = 45

Step 1: Use guess and test to figure out ☐.

20 + 10 = _____

20 + 15 = _____

20 + 20 = _____

20 + 25 = _____

Step 2: Fill in the missing number.

20 + _____ = 45

How many grams of almonds does Cole need to add to the 20 g bag? _____

L Name: _____ Date: _____

1.6 Solving Problems with Equations Page 2

Reflecting

Why are 20 and [redacted] on the same side of the equation?

_____

_____

_____

_____

How does writing an equation help you solve the problem?

_____

_____

_____

_____

C&P Name: _____ Date: _____

1.6 Solving Problems with Equations Page 1

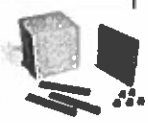
Student Book pages 24–26

GOAL

Use equations to solve problems.

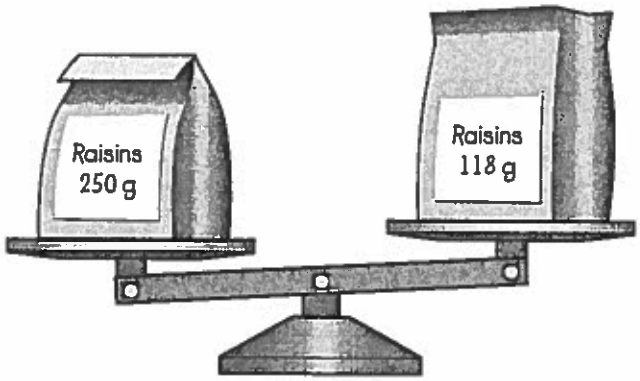
You will need

- base ten blocks



Checking

1. Cole needs to make 250 g bags of raisins. So far he has 118 g of raisins in a bag. Does Cole need to add or subtract to get to 250? _____



a) How many more grams of raisins does Cole need to add?

Write an equation to describe the problem.

_____

b) Model your equation with base ten blocks.

Draw your model.

Left side	Right side

Add blocks until both sides have the same value.

What is the missing number? _____

How many grams of raisins does Cole need to add? _____

C&P Name: _____ Date: _____

1.6 Solving Problems with Equations Page 2

Practising

4. Colin had 75 raffle tickets to sell.

He sold some already.

He needs to sell 36 more.

How many tickets has Colin sold?

Step 1: Write an equation to describe the problem.

_____

Step 2: Figure out the missing number.

Model your equation with base ten blocks.

Draw your model.

Left side	Right side

Add blocks until both sides have the same value.

How many raffle tickets has Colin sold? _____

Chapter 1 Lesson 6

Name: _____ Date: _____

Solving Problems with Equations

GOAL

Use equations to solve problems.

1. What is the missing number in each equation?

a) 100 + _____ = 150

b) 75 − 20 = _____

c) _____ + 32 = 40

d) 230 + _____ = 400

e) 180 − _____ = 125

f) _____ + 187 = 245

At-Home Help

Here are some ways to solve equations:

- use guess and test
- use a number line
- model the problem using base ten blocks or counters

2. Use an equation to solve each problem.

a) Joshua has 250 g of peanuts. He needs 600 g.
How many more grams of peanuts does he need?

b) Rebecca has 30 g of sugar. She needs 70 g.
How many more grams of sugar does she need?

c) Lang wants to make 155 chocolates to give as gifts.
He made 87 last week. How many more does he have to make?

d) Manuel is building a wooden model of a ship. He has 165 g of balsam wood. He needs 198 g of wood.
How many more grams of wood does Manuel need?

Name **Date**

1. Complete these number patterns.

   a. 3, 7, 6, 10, ___ , ___ , ___ , ___

   b. 10, 20, 40, ___ , ___ , ___ , ___

   c. 2, 10, 18, ___ , ___ , ___ , ___

   d. 63, 69, 75, ___ , ___ , ___ , ___

   e. 50, 48, 45, 41, ___ , ___ , ___ , ___

   f. 1, 2, 11, 12, 21, ___ , ___ , ___ , ___

2. Use the rule to complete the number pattern.

   a. +10 → 26 → ___ → ___ → ___ → ___

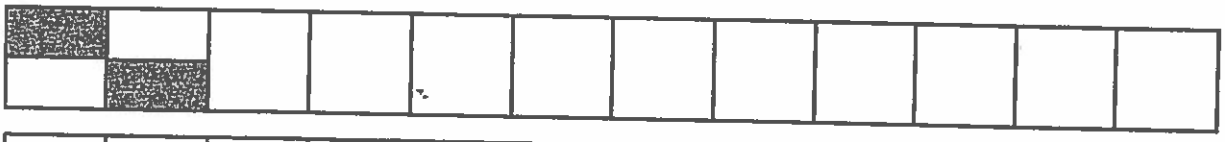
   b. −17 → 100 → ___ → ___ → ___ → ___

   c. x2 → 2 → ___ → ___ → ___ → ___

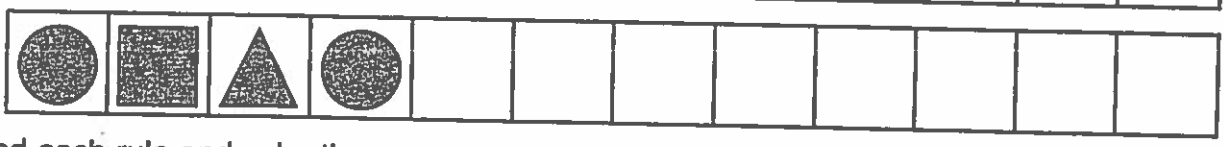
   d. ÷2 → 64 → ___ → ___ → ___ → ___

3. Complete the patterns.

   a.

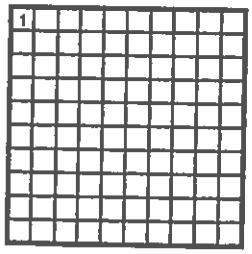
   

   b.

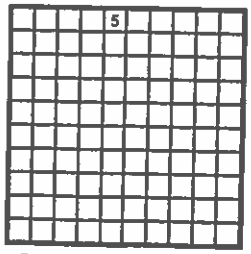
4. Read each rule and color the squares to make the pattern.

   a.

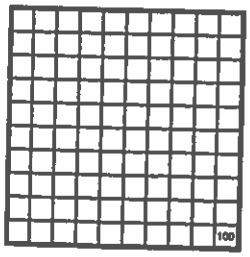
   Start at 1 add 12.

   b.

   Start at 5 add 5.

   c.

   Start at 100 subtract 17.

5. Complete the table by following the rules.

	RULE	22	12	36	10	18	28
a.	add 6; double						
b.	divide by 2; take away 5						
c.	triple; add 10						

C&P Name: _____ Date: _____

1.7 Equations in a Story

Student Book page 27

GOAL

Create and solve equations to go with a story.

In *My Rows and Piles of Coins* by Tololwa M. Mollel, a Tanzanian boy named Saruni saves his coins to buy a bicycle.

Saruni starts with 5 ten-cent coins.

When he is ready to buy the bicycle, he has 305 ten-cent coins.

To find out how many coins Saruni saved, solve this equation: $5 + \square = 305$

What equations can you create and solve about saving money?

Step 1: List some ways to earn money.

_____

_____

Step 2: List some things you might save for.

_____

_____

Step 3: Write some equations to go with your money story.

_____

_____

Step 4: How did you decide where to put the missing numbers?

_____

_____

Step 5: How would you solve your equations?

_____

_____

L Name: _____ Date: _____

1.7 Equations in a Story

Student Book page 27

GOAL

Create and solve equations to go with a story.

Problem

Shaun is saving money to buy a package of stickers.

His mother gives him 5 dimes to start.

When he is ready to buy his stickers, he has 110 dimes.

Shaun writes an equation to figure out how many dimes he saved.

$5 + \square = 110$

What equations can you create and solve about saving money?

Write your own story about someone saving money.

Write an equation that goes with your story.

Name: _____ Date: _____

Chapter 1

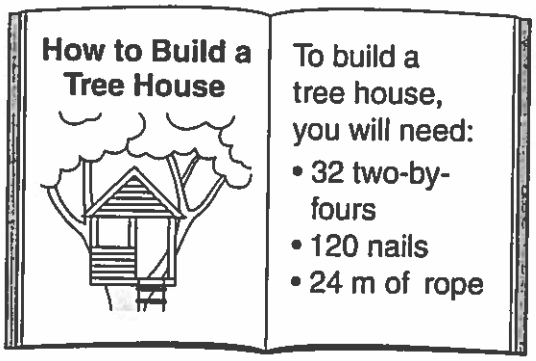
Lesson 7

Equations in a Story

GOAL

Create and solve equations to go with a story.

In the garage, Olivia found 13 two-by-fours, 60 nails, and 8 m of rope. What does she still need to build a tree house?



Answer the questions below to solve the problem.

1. a) Write an equation with a missing number that describes the number of two-by-fours Olivia needs.

_____

b) Figure out the missing number.
How many two-by-fours does Olivia need?

2. a) Write an equation with a missing number that describes the number of nails Olivia needs.

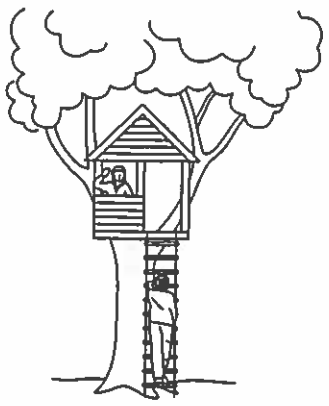
_____

b) Figure out the missing number.
How many nails does Olivia need?

3. a) Write an equation with a missing number that describes the number of metres of rope Olivia needs.

_____

b) Figure out the missing number.
How many metres of rope does Olivia need?



Name: _____ Date: _____

Chapter 1 Test Yourself

Circle the correct answer.

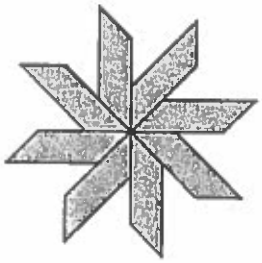
+	10	20	30	40
1		21	31	41
2	12		32	42
3	13	23		43
4	14	24	34	

1. Which numbers are missing from the table?

A. 11, 21, 31, 41 **C.** 11, 33, 55, 77

B. 11, 22, 33, 44 **D.** 10, 40, 90, 160

2. Tien is using a table to see if she has enough blocks to make 4 stars. What numbers should Tien write in her table?



A. 8, 8, 8, 8

B. 6, 12, 18, 24

C. 6, 6, 6, 6

D. 8, 16, 24, 32

Tien's Pattern

Number of stars	Total number of blocks
1	
2	
3	
4	

3. Aaron saved money to buy a new skateboard. His savings made this pattern.

10, 20, 30, 40, ...

Which equation represents how Aaron's pattern increases?

A. 30 − ▢ = 5 **B.** 20 + ▢ = 30 **C.** 5 + ▢ = 10 **D.** 20 + ▢ = 50

4. What is the missing number in the equation?

5 + ▢ = 12

A. 6 **B.** 3 **C.** 5 **D.** 7

5. What is the missing number in the equation?

8 + ▢ = 11

A. 5 **B.** 3 **C.** 6 **D.** 2

6. Cole needs 120 g of flour. So far he has 75 g of flour. How many more grams of flour does Cole need?

A. 50 g **B.** 35 g **C.** 45 g **D.** 40 g

Name: _____ Gr. 5 Date: _____

Chapter 1: Patterns in Mathematics

Identify and describe patterns

Pattern rules can be used to describe how a pattern begins and how it continues. For example, a pattern rule for 5, 8, 11, 14, ... is "start at 5 and add 3."

1. Grace makes bracelets out of beads. The table shows the number of small beads used for every large bead.

Grace's Bracelets

Number of large beads	Number of small beads
1	3
2	6
3	9
4	12

a) Describe the pattern in the second column of the table.

_____

_____

b) If the pattern continues, how many small beads will Grace need if she uses 7 large beads?

_____

Extend patterns to solve a problem

Using a chart or table showing a pattern makes a problem easier to solve.

2. Dylan washes the dishes every 3rd day. He sweeps the floor every 2nd day. How many times in a month does Dylan wash dishes and sweep the floor on the same day? Explain what you did.

September						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

_____

_____

_____

Name: _____ Date: _____

Express a problem as an equation

You can use patterns to write an equation and solve a problem.

3. Chloe started with 48 sparkle pens. She brought the pens to school to share with her classmates every day. The number of pens Chloe had left each day made the pattern 48, 44, 40, 36, 32, ...

a) How many classmates does Chloe give pens to each day? Use an equation with a missing number to solve the problem.

_____

_____

b) How many days did it take for Chloe to share all the sparkle pens?

_____

4. Taylor earned $34 by mowing lawns. Then, she bought gasoline for the mower. She had $25 left. How much money did Taylor spend on gasoline? Use an equation to solve the problem.

_____

_____

5. What is the missing number in each equation?

a) $8 + \_\_\_\_\_ = 12$

b) $13 + \_\_\_\_\_ = 30$

c) $\_\_\_\_\_ + 34 = 65$

d) $72 - \_\_\_\_\_ = 38$

e) $\_\_\_\_\_ + 43 = 65$

f) $\_\_\_\_\_ - 54 = 17$

Name: _____ Date: _____

Chapter 1 Test

1. Use patterns to complete the addition table.
Describe the patterns you used.

_____

_____

+	1	3	5	7	9
5	6	8		12	14
10	11		15	17	
15		18	20		24
20			25		

2. Leo made this pattern out of toothpicks.

a) How many toothpicks will he need to make 10 shapes?
Use this table to solve the problem.

b) Describe the pattern.

_____

Number of shapes	Total number of toothpicks
1	5
2	10
3	14
4	19
5	24
6	28
7	
8	
9	
10	

3. Marla recorded how many fish were in the tanks at the pet store.
If the pattern continues, how many fish will there be in 7 tanks? _____

Number of tanks	Total number of fish
1	7
2	14
3	21
4	
5	
6	
7	

4. Anna helped her neighbour in July. She watered the plants every 2 days and gave them fertilizer every 5 days. How many times in July did the plants get water and fertilizer on the same day?

_____

JULY						
Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

5. What is the missing number in each equation?

a) $\square + 11 = 28$ **b)** $39 = \square - 6$

c) $65 + \square = 80$ **d)** $53 - \square = 44$

6. Write an expression for each situation.

a) 7 less than a number _____

b) 12 more than a number _____

c) 29 more than a number _____

d) 29 less than a number _____

7. Write a problem that can be solved using each equation. Then, use the equation to solve your problem.

a) $15 + q = 38$ **b)** $m - 8 = 47$