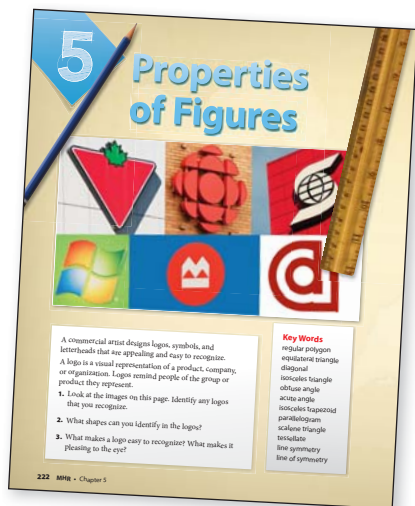


# A Tour of Your Textbook

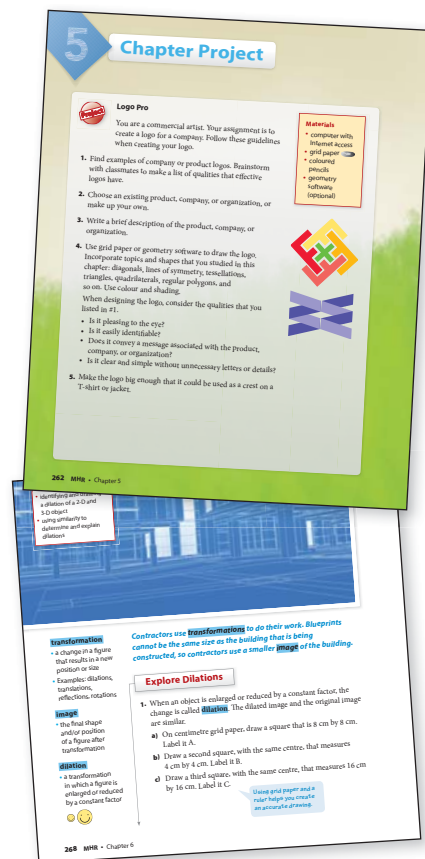
## Chapter Opener

Each chapter begins with a two-page spread which introduces you to what you will learn in the chapter.



The first page includes a visual, a list of **Key Words**, and some questions.

- The visual and questions are related to the **Chapter Project**, which is at the end of the chapter.
- The **Key Words** are used throughout the chapter. The first time each Key Word is used, it is highlighted in blue. The word is defined in the margin. Sometimes there is a visual.



**Career Link**

Brian went to college to train to be a retail store manager. He then worked as an apprentice in a store to learn about the job. He hopes to soon be running his own store. Retail store managers order products. They collect, organize, and analyse data about buying patterns to help them to place orders. They also hire and train employees, deal with customers, and make sure the store runs smoothly.



Working With Data • MHR 61

**Career Link**

The second page of each chapter opener has a **Career Link** and a series of visuals.

- Check the Career Link for information about interesting jobs related to the math in the chapter.
- The pictures show people doing various types of work that use the math in the chapter.

**Get Ready**

The **Get Ready** is next.

- These pages provide a brief review of skills used in the chapter.
- Some of these skills are from previous grades. Others are from previous chapters.
- You will need these skills to be successful with the chapter.

4

Get Ready

**Rounding**

- Round to the nearest dollar.
  - \$2164.76
  - \$1928.33
  - \$55 555.50
- Round to the nearest hundred dollars.
  - \$3571
  - \$6421
  - \$33 618.33
- Round to the nearest tenth of a percent. Then, write as a decimal.
  - 62.25%
  - 83.97%
  - 0.24%
  - 0.07865%

**Percent**

- Estimate each number as a percent, then calculate the percent. Round your answer to the nearest tenth of a percent.
  - 160  
280

You can estimate this way. First, of 280 is 140. So, 160 out of 280 is more than 50%. That means 160 out of 280 is about 60%.

  - 169.95  
4065
  - 12 680.15  
55 000
  - 16.96 out of 34.45

- Leslie is saving for a trip to Florida. Every payday she saves 10% of her net pay. She brings home \$1153.84 every two weeks.
 
  - Calculate how much Leslie saves each pay.
  - Estimate how much she saves in one year. Then, calculate her yearly savings.

**Average**

- Determine the average of 65, 78, 45, 76, 65, 55, and 32. Round your answer to the nearest whole number.
- Sue's electricity bills for last year totalled \$1871.40. What was her average monthly bill?
- Last year, at the end of every day, Janie put her loose change into a jar. At the end of the year she had \$452.60.
  - On average, how much change did Janie save each month?
  - On average, how much change did Janie save each day?

**Budgets**

- Paul's net pay is \$1038 every two weeks. His monthly expenses are as follows:
  - \$275 rent
  - \$350 groceries
  - \$115 heat and electricity
  - \$225 car payment
  - \$85 car insurance
  - \$200 savings
  - \$65 cell phone
  - \$55 cable
 How much money does Paul have left at the end of a two-pay month?

**Graphs**

- Draw the graph represented by each table of values. Is the relation linear or non-linear?
  - | Time (hours) | Distance (km) |
|--------------|---------------|
| 0            | 0             |
| 4            | 3             |
| 5            | 2             |
| 9            | 3             |
| 12           | 4             |
  - | Temperature (°C) | Volume (mL) |
|------------------|-------------|
| 10               | 849         |
| 15               | 868         |
| 20               | 875         |
| 25               | 894         |
| 30               | 909         |

11. The bar graph shows sales for two real estate agents.

- How many houses did Mr. Adams sell in year 4?
- How many houses did Mr. Blake sell in year 3?
- In what year did Mr. Blake and Ms. Adams sell the same number of houses?
- Which real estate agent would you hire to sell your house? Why?

**Converting Units**

- Express each time period in years.
  - 60 months
  - 48 months
  - 36 months
- Express each time period in months.
  - 2 years
  - 3 years
  - 4 years

168 MHR • Chapter 4
Get Ready • MHR 169

## Sections

Each chapter is divided into sections. Each section starts with an **Explore**.

## Explore

This activity is designed to help you build an understanding of the new concept. The activity is often related to the opening visual and introductory text in the section.

The **Reflect** question at the end of each Explore helps you explain what you learned from the activity.

There may be one or more **Extend Your Understanding** questions. These often connect the math skill to a way that people use it in their job or in their lives.

## On the Job

One or more **On the Jobs** follow the **Explore**. These demonstrate how to use the concept from the Explore.

- Each On the Job starts with a problem. These problems come from everyday life or work experiences.
- The **Solution** may show one or more ways to solve the problem. One method may make more sense to you than another. Or, you can develop your own method.
- Notes in a speech bubble provide tips for solving the problem.
- Calculator key sequences are shown in gray. You may need to check that your calculator uses the same sequence.

The On the Job ends with a **Your Turn**. This gives you an opportunity to show that you understand what you have learned.

### 3.3 Partial Variation

**Focus On...**

- understanding why a relationship is a partial variation
- modelling a partial variation relationship with a table of values, a graph, or an equation
- solving problems involving partial variation relationships
- comparing direct and partial variation relationships

**Strategy**

**Look for a Pattern**

*Many taxis charge an initial fixed amount plus a variable amount that depends on the length of the trip. This means that if trip A is twice as long as trip B, the cost of trip A is twice as much as the cost of trip B, plus the initial amount.*

**Materials**

- toothpicks
- grid paper


**Explore a Partial Variation Relationship**

1. Create a toothpick pattern.
- a) Arrange toothpicks to form a triangle. Count the toothpicks.
- b) Add toothpicks to build a second triangle that shares a side with the first. Count the toothpicks.
- c) Add toothpicks to build a third triangle that shares a side with the first. Count the toothpicks.

**Partial Variation**

• one variable in a linear relationship is a fixed multiple of the independent variable plus a constant amount, e.g. the y-value is always 3 times the x-value plus 2

• in a graph of a partial variation relationship, the constant amount is the y-intercept and the fixed multiple is the slope of the line



**2.** Write the number pattern formed by the number of toothpicks. What do you notice?

**3.** Predict the number of toothpicks needed for 4, 5, and 6 triangles.

**3.** Create a table of values that relates the number of triangles to the number of toothpicks.

**3.** Continue adding toothpicks to complete the table.

Number of Triangles	Number of Toothpicks
1	3
2	
3	
4	
5	
6	

**4.** Create a scatter plot of the data in the table.

**4.** Would you draw a line, dashed or solid, to connect the points? Explain.

**5.** What are the slope and y-intercept of the line?

**5. Reflect.** Analyze the table of values and graph.

**5.** How does the table of values show that the relationship is linear?

**5.** How does the table show that the relationship is **partial variation**?

**6. Extend Your Understanding** Use what you know about the relationship to answer each question.

**a)** How many toothpicks would you need to build 7 triangles? Explain.

**b)** How many toothpicks would you need to build 100 triangles? Explain.

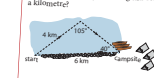
**Remember!** Recall that a dashed line whose discrete data that have no x or y values between plotted points, we have to draw a solid line above continuous data.

3.3 Partial Variation • MHR 143
144 MHR • Chapter 3

### On the Job 1

**Choose the Sine Law or Cosine Law to Solve a Problem**

Jade works at a summer camp for children on Lake of the Woods, MN. She takes small groups of children for canoe trips. The lake has a stretch of shoreline that is rocky, so she tries to avoid it. To do this, she takes an indirect route to get to the first campsite. Her route is shown on the map. By how much does she go out of her way by following this route, to the nearest tenth of a kilometre?



**Solution**

The starting point, the route's turning point, and the campsite form the vertices of an obtuse triangle. Two side lengths and two angles are known.

Draw a diagram to model the situation:

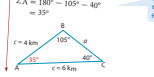
Let what is known and what needs to be determined.

- You know four measures:  $b = 6$  km,  $c = 4$  km,  $\angle C = 105^\circ$ , and  $\angle B = 105^\circ$ .
- You need to determine side length  $a$  to calculate the difference between the direct route, which is 6 km, and the route Jade took, which is 4 km +  $a$ .

Calculate  $\angle A$ :

$$\angle A = 180^\circ - 105^\circ - 40^\circ = 35^\circ$$

*The sine law can be used to find side length  $a$ .*



**Strategy**

**Develop a Strategy**

What other situations could you use for Method 1?

Calculate side length  $a$ :

**Method 1: Use the Sine Law**

The sine law will work because two angles ( $\angle A$  and  $\angle B$ ) and a side length ( $B$ ) are known (AAS).

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\frac{a}{\sin 35^\circ} = \frac{6}{\sin 105^\circ}$$

$$a = \frac{6 \sin 35^\circ}{\sin 105^\circ}$$

$$a \approx \frac{6(0.5736)}{0.9063}$$

$$a \approx 3.7680$$

$$a \approx 3.8$$

$c = 4$  km      $a \approx 3.8$  km

$\angle A = 35^\circ$       $\angle B = 105^\circ$

*The answer 3.8 km makes sense because 3 appears to be a bit shorter than the 4 km side length in the diagram.*

Side length  $a$  is approximately 3.8 km.

**Method 2: Use the Cosine Law**

The cosine law will also work because two side lengths ( $b$  and  $c$ ) and the angle between them ( $\angle C$ ) are known (SAS).

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$a^2 = 6^2 + 4^2 - 2(6)(4) \cos 35^\circ$$

$$a^2 = 12.680$$

$$a = \sqrt{12.680}$$

$$a \approx 3.560$$

Side length  $a$  is approximately 3.6 km.

Calculate the difference between the route Jade took and the direct route:


$$(4 + 3.6) - 6 = 1.6$$

Jade went 1.6 km out of her way.

**Your Turn**

**a)** Determine  $\angle A$  to the nearest degree in  $\triangle ABC$ . Which law did you use and why?

**b)** Determine side length  $c$  to the nearest tenth of a centimetre. Which law did you use and why?



354 MHR • Chapter 7
7.3 Solving Trigonometric Problems • MHR 355

Math at Work 12 (ISBN: 978-1-25-901238-9) • MHR 3

**Check Your Understanding**

**Try It**

- Determine the 50th percentile for each data set. Hint: The 50th percentile is the median.
  - 3, 15, 6, 12, 15, 3, 9, 10, 15
  - 12.5, 22, 20, 7, 36, 14, 42, 15, 52, 25
  - 135, 159, 254, 199, 205, 175, 180
  - 88, 73, 56, 61, 64, 68, 71
  - 6, 20, 16, 14, 9, 15, 18, 7, 10
  - 134, 140, 142, 98, 172, 194, 138
- Determine the 25th percentile for each data set in #1.
- Determine the 75th percentile for each data set in #1.
- Use the data set in the table to answer the questions.
 

Stem	Leaf (ones)
4	1 1 4 7
5	0 1 1 2 3 4 5 6 8 9
6	2 0 2 4 4 6 7 7 8 9
7	1 0 1 5 8 9
8	0 3 7

  - What value is at the 50th percentile? the 25th percentile?
  - What is the percentile rank of a value of 11? of 32? of 41?

**Apply It**

- Fiona enters her latest painting in an art contest. She scores 21 out of 30. She does not win a prize, but she is happy with her score. The scores of nine other people who entered the contest are 19, 14, 23, 16, 15, 13, 17, 22, 20.
  - What is the range of scores?
  - At what percentile is a score of 16?
  - At what percentile is a score of 23?
  - What score is at the 50th percentile?
  - Why do you think Fiona is happy with her score?

**FWA**  
A growth chart shows a range of height for weight. Individual differences in growth, in terms of a person's making weight with weight, height with weight, and growth charts of track children's growth over time and measure how a child's gaining in relation to other children.

**FWA**  
The 25th percentile is also called the lower quartile. The 75th percentile is also called the upper quartile.

**FWA**  
Members of logging crews use heavy machinery, chainsaws, and safety equipment to cut down trees. Then, they debark the trees, cut them into lengths, and move the lengths from the stump to the roadside for more information about logging or careers in the logging industry, go to [www.nrs.fs.fed.us/basics/basics12](http://www.nrs.fs.fed.us/basics/basics12) and follow the links.

**2.2 Using Other Statistical Measures • MHR 91**

## Check Your Understanding

questions follow each **On the Job**.

- The first part of this question set includes **Try It** questions. These questions check your knowledge and understanding of the **On the Job**. Most can be answered by following the example in the **On the Job**.
- Apply It** questions include problems from everyday life or the workplace. You need to apply the skills you learned in the **On the Job** to these situations.

## Work With It

The end of each section has **Work With It** questions. To answer these questions, you may need to use knowledge and skills from more than one **On the Job**.

The **Discuss It** questions are communication questions.

- You may wish to discuss the questions with the class, in a group, or with a peer.
- Communicate your thoughts in the way that works best for you. This may be in writing, orally, or visually.

**Work With It**

Round all angles to the nearest degree and all side lengths to the nearest tenth of a unit. Estimate to check your answers.

- The roof of a ski chalet has an irregular shape. The pitch of one roof line is  $25^\circ$ . The length of the shorter roof line is  $4\frac{1}{2}$  yards.
  - What is the length of the longer roof line?
  - How wide is the roof at the bottom?
- A chandelier in a hotel lobby is suspended from a horizontal beam by two support chains. One of the chains is 2.8 m long and forms an angle of  $58^\circ$  with the beam. The second chain is 4 m long.
  - What angle does the second chain make with the beam?
  - How long is the beam from A to B?
- Michael, a forest ranger, sees smoke from his lookout tower. A truck driver out of the lookout tower also sees the smoke. He uses his GPS to determine the truck's position. The diagram shows the readings taken by the truck driver and the forest ranger.
  - What is the tolerance in the distance between the truck driver and the lookout?
  - What are the maximum and minimum distances between the lookout and the fire?

**FWA**  
"No 'Waters Triangle'"  
The area of a triangle is  $\frac{1}{2}ab \sin C$ . The area of a triangle is also  $\frac{1}{2}ac \sin B$ . The area of a triangle is also  $\frac{1}{2}bc \sin A$ . Use these formulas to find the area of a triangle.

**Discuss It**

- Explain why the sine law cannot be used to solve each triangle.
  - 
  -
- Ung says that you can solve  $\triangle ABC$  using the sine law, but not  $\triangle DEF$ . Is she right? Explain.
  - 
  -
- Stacey tried to calculate  $\angle P$  for  $\triangle PQR$  and got an error message.
 
$$\frac{\sin P}{24} = \frac{\sin Q}{19}$$

$$\sin P = \frac{24 \sin Q}{19}$$

$$P = \sin^{-1} \left( \frac{24 \sin 107^\circ}{19} \right)$$

$$P = \sin^{-1} (1.18900152)$$
 Error
  - Where did Stacey go wrong?
  - What could she have done before she started calculating to prevent this error?
- Use the sine law,  $\frac{\sin A}{a} = \frac{\sin B}{b}$  to determine  $\angle A$ .
  - Now use the other version of the sine law,  $\frac{\sin A}{\sin B} = \frac{a}{b}$  to determine  $\angle A$ .
  - Which version of the sine law did you prefer for determining  $\angle A$ ? Why?
  - Which version of the sine law would you use to determine side length  $c$ ? Why?

**2.7 The Sine Law • MHR 337**

## Other Features

### F.Y.I.

The F.Y.I. boxes are “for your information.”

**F.Y.I.**  
The average daily high temperature in Mexico City in February and September is 23 °C.


- These boxes provide additional information about items in the text.

**F.Y.I.**  
The probability of precipitation is based on a combination of

- how certain the meteorologist is that precipitation will occur somewhere in the area
- how much of the area is expected to receive precipitation

- Some provide background information.

**F.Y.I.**  
In a regular polygon, all sides are the same length and all angles have the same measure. A pentagon has five sides. A hexagon has six sides.



- Many of these boxes include visuals which help explain a new word.

### Web Links

**Web Link**  
To find out what the minimum wage is in your province, go to [www.mcgrawhill.ca/books/mathatwork12](http://www.mcgrawhill.ca/books/mathatwork12) and follow the links.

You can find extra information related to some questions on the Internet. Log on to [www.mcgrawhill.ca/books/mathatwork12](http://www.mcgrawhill.ca/books/mathatwork12). You will be able to link to recommended Web sites.

**Web Link**  
Most designers use computers to create 3-D drawings. To practise designing a room, go to [www.mcgrawhill.ca/books/mathatwork12](http://www.mcgrawhill.ca/books/mathatwork12) and follow the links.

Some of these **Web Links** lead to interactive games and applets.

### Tools of the Trade



**Tools of the Trade**  
Horticultural technician is a Red Seal trade. Horticultural technicians use gardening and power tools to grow, plant, and maintain various types of plants, turf, and shrubs. They also install and maintain irrigation systems and construct landscapes.

**Tools of the Trade** boxes provide information about the type of work involved in a specific career, and the tools and equipment used. Go online to [www.mcgrawhill.ca/books/mathatwork12](http://www.mcgrawhill.ca/books/mathatwork12). You will be able to link to Web sites that provide additional information about that trade. Some include videos of people on the job.

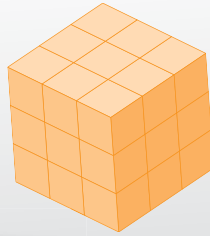
## Games and Puzzles

Have some fun! Two features encourage you to play with the math you are learning.

- A **Games and Puzzles** page at the end of each chapter provides entertaining activities that reinforce the skills you are learning.
- **Puzzler** boxes in some chapters are connected to the math in that chapter.

### Puzzler

What is the least number of cuts needed to divide the  $3 \times 3 \times 3$  cube into 27 cubes that are each  $1 \times 1 \times 1$ ? A cut can go through multiple pieces.



## 3 GAMES AND PUZZLES

### Sudoku®

Sudoku® is a logic puzzle. Logic puzzles require "Since ... then ..." thinking to solve them. To solve a Sudoku®, the digits 1 through 9 must appear in every row in every column, and in every 3-by-3 box exactly once.

In the example below:

- since the only digits missing from column 1 are 7 and 8, and since there is a 7 in row 2 already, then a 7 belongs in the red square
- since the bottom row contains an 8, and since the second from the bottom row contains an 8, then the only place that an 8 can be in the bottom-left 3-by-3 box is in the blue square

6	5	2				3		
3	9	5	7	2				
	2				5	4		
4		9	3	1				
9		8	1	7				
1			5	7		8		
3	7			2				
2	9		8	7	3			
8				2	1	8		

**Materials**  
• grid paper or Sudoku® Puzzle  
• BLM

- Copy the puzzle above onto grid paper, or use the blackline master. Use "Since ... then ..." logic to solve the puzzle. You can work with a partner or on your own.
- Choose one answer that you recorded in the puzzle. Explain the logic you used to determine which digit belonged in that square.
- How would your logic change if there were no 3-by-3 boxes in the puzzle and you had to consider only rows and columns?

Games and Puzzles • MHR 165

## Mini Labs

**MINI LAB** Mini Labs in some chapters allow you to experiment with what you are learning.

- These include a **Materials** box in the margin. You need these items in order to do the activity.
- Work with a partner or in a small group. How does the activity help you with the math in the chapter?

### Materials

• 2 dice

### F.V.I.

A simulation is an experiment used to model a real situation.

- 7. MINILAB** Work in a group to design a simulation experiment.

#### STEP 1

Read the following scenario: A submarine sandwich shop is having a promotion. For every sandwich purchased, there is a 1 in 6 chance of winning a prize. Theoretically, how many winners would you get if you ordered 50 sandwiches for a party?

#### STEP 2

As a group, discuss what roll of two dice has the same probability of occurring as in the scenario in step 1.

#### STEP 3

Determine how the answer to step 2 could be used as a simulation of the chances of winning in the sandwich shop's promotion.

#### STEP 4

- Roll two dice exactly 50 times. Consider the roll you identified in step 2 to be a win. All other sums of the dice are not a win. How many times did you win?
- Compare your prediction in step 1 to your experimental results.
- How many students in your class had experimental results better than the theoretical results of the sandwich shop's promotion? Explain why you think this happened.

## Skill Check

There is a **Skill Check** at the end of each chapter. This is a chapter review.

- The Skill Check starts with a **What You Need to Know** box. This lists the skills covered in the chapter. You can check what section each skill is in.
- The Skill Check is organized by section number. You can look back if you need help with a question.



## 5 Skill Check

### What You Need to Know




Section	After this section, I know how to ...
<b>5.1</b>	<ul style="list-style-type: none"> <li>determine the sum and measure of the angles in a polygon</li> <li>identify the types of angles in a polygon</li> <li>explore tessellations of polygons</li> </ul>
<b>5.2</b>	<ul style="list-style-type: none"> <li>determine the properties of quadrilaterals related to side lengths and diagonals</li> <li>determine the angle properties of quadrilaterals and triangles</li> <li>determine the properties of triangles related to side lengths</li> <li>relate the side lengths and angle measures of triangles</li> </ul>
<b>5.3</b>	<ul style="list-style-type: none"> <li>relate the property of symmetry to the classification of triangles, quadrilaterals, and other polygons</li> <li>determine which polygons have lines of symmetry</li> <li>determine the number of lines of symmetry in polygons</li> </ul>

*If you are unsure about any of these questions, review the appropriate section or sections of this chapter.*







**5.1 Angle Properties of Polygons, pages 226-237**

- Determine the sizes of the angles in each regular polygon. Then, state the measure of each interior angle.
  - pentagon
  - 10-sided figure
  - 11-sided figure
  - 11-sided figure
- Jason is designing a mosaic top for a patio table using an isosceles triangle. Can he tessellate this shape to create a pattern? Show whether this is possible. State the measure of each interior angle for your design.
 
- Mary is placing a hexagonal stained-glass window above her front door. What is the total area of glass she needs to purchase?
 

**5.2 Side Lengths and Diagonal Properties of Polygons, pages 238-247**

- Rachel is designing two inland triangular designs for the headboard of a bed.
  - Are the measurements for the side lengths possible in triangle 1?
 
  - Are the angle measures possible in triangle 2?
 
- Determine the missing side lengths and angle measures of the parallelogram.
 

**5.3 Symmetry, pages 248-257**

- The large equilateral triangle shown is divided into nine smaller equilateral triangles. Draw three copies of the large triangle. Shade one or more of the smaller triangles, but not all nine, to match each description.
 
  - The large triangle has exactly one line of symmetry.
  - The large triangle has exactly three lines of symmetry.
  - The large triangle has no lines of symmetry.
- How many ways are there for Mary to position the stained-glass window in #3 so that one of the lines of symmetry is a vertical line?
 
- Meredith is designing a logo for her art club using quadrilaterals. State the name of each quadrilateral and the number of lines of symmetry it has.
  -  b)  c)  d) 

258 MHR • Chapter 5

Skill Check • MHR 259

## Test Yourself

The **Test Yourself** at the end of each chapter is a practice test.

- The Test Yourself includes multiple choice and extended response questions.
- It covers similar questions to what you can expect on a chapter test.

### 6 Test Yourself

For #1 to #5, select the best answer.

- Which pair of transformations was performed on the parallelogram?
  - A translated 10 units right and 2 units down
  - B rotated  $180^\circ$  about the origin
  - C reflected over the  $x$ -axis and  $y$ -axis
  - D reflected over the  $y$ -axis and translated 2 units down
- Point  $P(5, 2)$  is reflected over the  $x$ -axis and then translated 5 units down. What are the coordinates of the image?
  - A  $(-5, 7)$
  - B  $(5, 7)$
  - C  $(-5, -7)$
  - D  $(5, -7)$
- Which rotation describes how the figure has been transformed?  $C$  is the centre of rotation.
  - A clockwise  $270^\circ$
  - B clockwise  $45^\circ$
  - C counterclockwise  $270^\circ$
  - D  $180^\circ$
- Suppose the rectangle is reflected over the  $y$ -axis. Which transformation will create the same image?
  - A rotation of  $90^\circ$  clockwise
  - B translation of 10 units left
  - C translation of 10 units right
  - D rotation of  $90^\circ$  counterclockwise
- Which transformations were used to create the pattern?
  - A rotation and reflection
  - B reflection and translation
  - C reflection and dilation
  - D rotation and dilation

6. The point  $P(13, 9)$  is rotated clockwise  $90^\circ$  about the origin, reflected over the  $y$ -axis, and translated 2 units left and 10 units up. Determine the coordinates of the transformed image.

7. a) Using a scale factor of 3, draw a dilation of the figure.  
 b) Using isometric dot paper, reduce the figure by a factor of  $\frac{1}{2}$ .

8. Describe the transformation(s) that create  
 a) A from C  
 b) C from B  
 c) D from C  
 d) B from A

9. Perform the following transformations, in order, using the diagram.  
 • translate the shape 2 units left and 3 units up  
 • rotate  $90^\circ$  counterclockwise about vertex O  
 • reflect over line  $u$

10. The net of a triangular pyramid is made up of four triangles. Describe the transformations that can be applied to triangle 1 to form the net.

Test Yourself • MHR 319

### 2 Chapter Project

#### Manage a Sporting Goods Store

- Choose a product related to sports by visiting a sporting goods store or researching a product on the Internet. Examples are athletic shoes, tents, fishing lure, personal flotation devices (PFDs), golf clubs, and camouflage clothes.
- Complete a table similar to the one shown.
  - Categorize the product by brand, style, size, weight, quality, and so on.
  - Find the price for each item.
  - Take an inventory of the product that is in stock at the store.

Product				
Brand	Style	Size	Price	Number in Stock
Northern	King of Hill	Small		
		Medium		
		Large		
Everlasting	Small	Small		
		Medium		
		Large		
Wonderful	Small	Small		
		Medium		
		Large		
- Use range and measures of central tendency to help you determine how to answer the following questions. For each, explain how you used the statistical measure.
  - a) How many items will you order for each style category and each size category?
  - b) Which items will you put on sale to clear stock?
  - c) Which items are seasonal, and need to be moved to storage or discontinued?

106 MHR • Chapter 2

## Chapter Project

Each Chapter Project requires you to use skills from the chapter. You will also need to use your creativity.

## Answers

Answers are provided for the Get Ready, Check Your Understanding, Work With It, Skill Check, and Test Yourself questions. They start on page 366 in the student resource. Sample answers are provided for questions that have several possible answers or that involve communication.

## Glossary

Refer to the illustrated Glossary starting on page 416 of the student resource. This provides the exact meaning of mathematical terms.