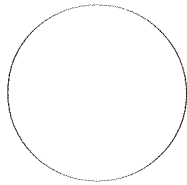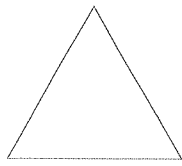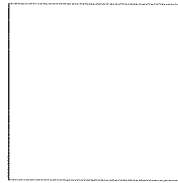# Lesson 1 Plane Figures

The following are plane figures.

| circle | triangle | square | rectangle |

Each side of a triangle, square, and rectangle is a line segment. The point where two lines meet is called a vertex (plural is vertices).
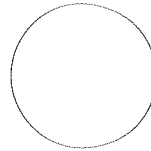
line segment →

vertex

List the letters of all the figures that apply to each figure name.

1. square _____

2. circle _____

3. triangle _____

4. rectangle _____

a *b* *c*

d *e* *f*
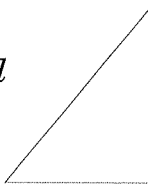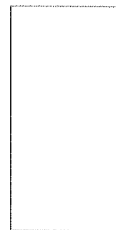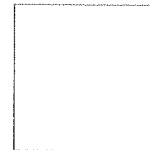
Complete the table.

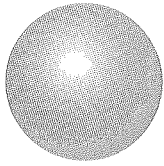|	plane figure	number of sides	number of vertices
5.	circle	0	
6.	triangle		
7.	square		
8.	rectangle		

9. What do you notice about the number of sides and the number of vertices in each plane figure? _____

_____

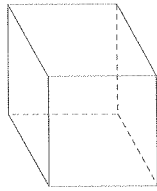**10.** If a figure has six sides, how many vertices does it have? _____

11. If a figure has ten vertices, how many sides does it have? _____

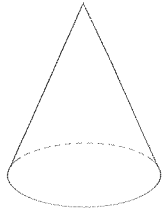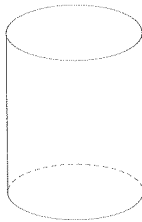CHAPTER 16

Lesson 2 Solid Figures
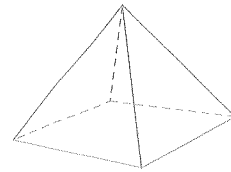
The following are solid figures.
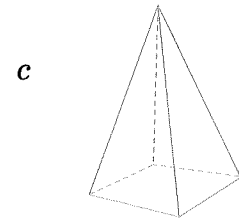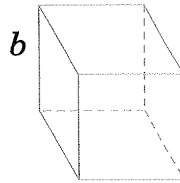
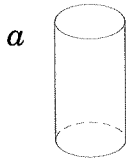sphere   cube   rectangular prism
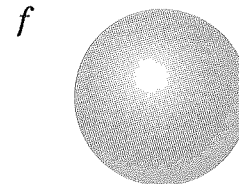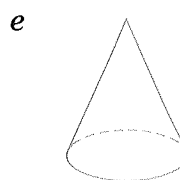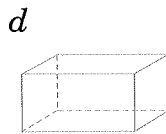
cone   cylinder   pyramid

List the letters of all the figures that apply to each figure name.

1. cone _____

2. cube _____

3. cylinder _____

4. pyramid _____

5. rectangular prism _____

6. sphere _____

a   *b*   *c*

d   *e*   *f*

g   *h*
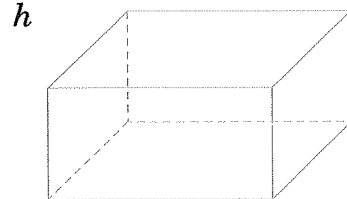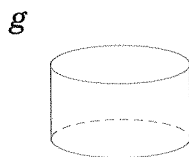
Name the solid figure that each object is shaped like.

              a   *b*

7. soup can _____   basketball _____

8. cereal box _____   ice-cream cone _____
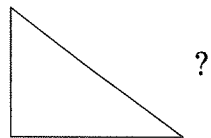
9. number cube _____   pop can _____

Lesson 3 Congruence

Two figures are congruent if they are the same shape and the same size.

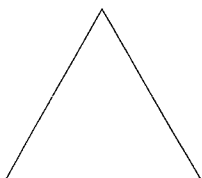Which of the following figures is congruent to   ?

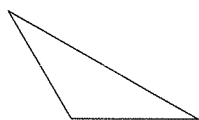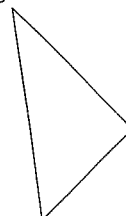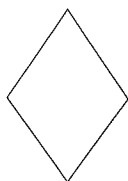Figure A   Figure B   Figure C

Figure __C__ is congruent because it is the same shape and size.

Circle the figure congruent to the first one in each row.
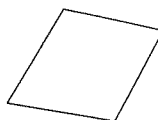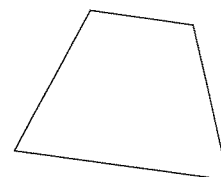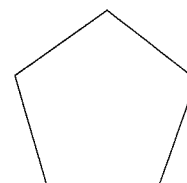
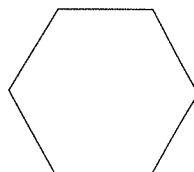|	a	b	c

1.

2.

3.

4.

5.

6.
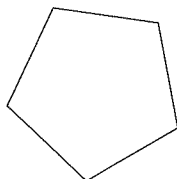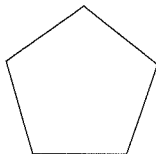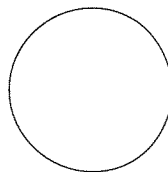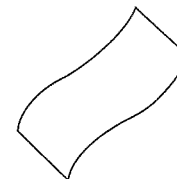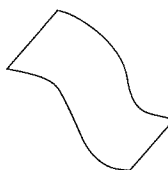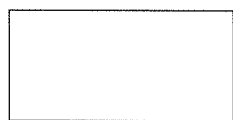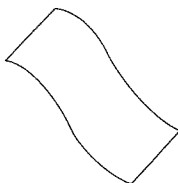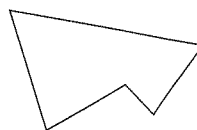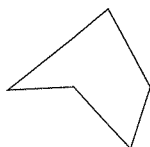
CHAPTER 16
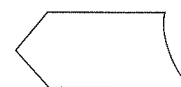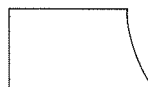
Lesson 4 Symmetry

A line of symmetry is a line on which a figure can be folded so that both parts are congruent.

This figure has a line of symmetry.   This figure does not have a line of symmetry.
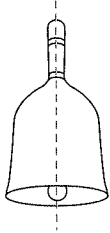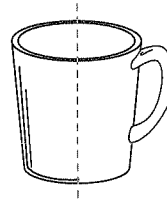
Is the line drawn on each figure a line of symmetry?

	a	*b*	*c*

1.

_____   _____   _____

2.

_____   _____   _____

Does each figure have a line of symmetry? If so, draw the line of symmetry.

	a	*b*	*c*

3.

_____   _____   _____

4.

_____   _____   _____
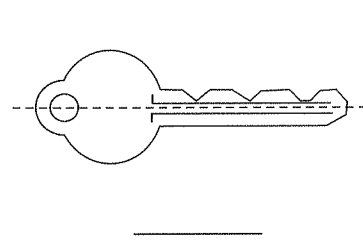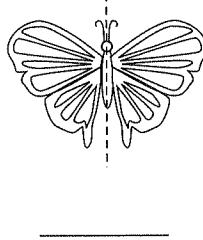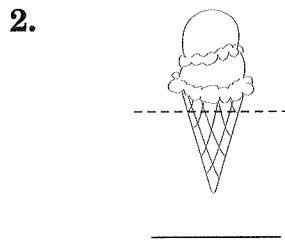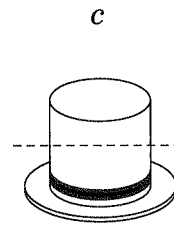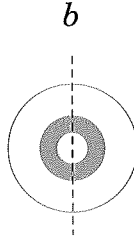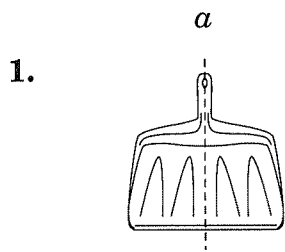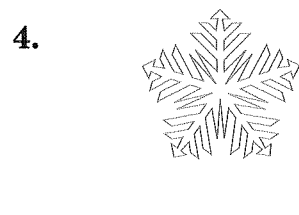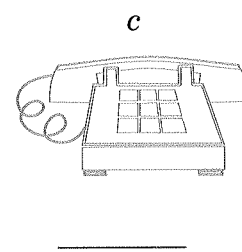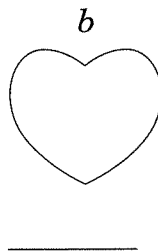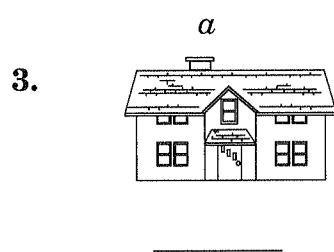
Lesson 5 Perimeter

Perimeter is the distance around a figure.
You can find perimeter by adding the measures of all the sides.

$$\begin{array}{r} 7 \\ 5 \\ +10 \\ \hline 22 \end{array}$$

$$\begin{array}{r} 3 \\ 6 \\ 3 \\ +6 \\ \hline 18 \end{array}$$
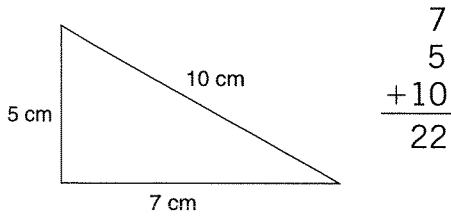
The perimeter is ___22___ cm.
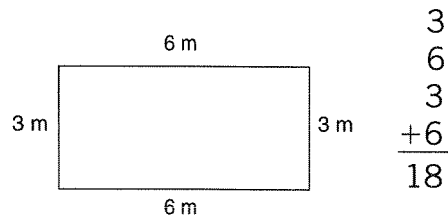
The perimeter is ___18___ m.

Find the perimeter of each figure.

<p align="center">a   b</p>

1.

_____ m

_____ cm

2.

_____ m

_____ mm

3.

_____ m

_____ cm

4.

_____ m

_____ mm
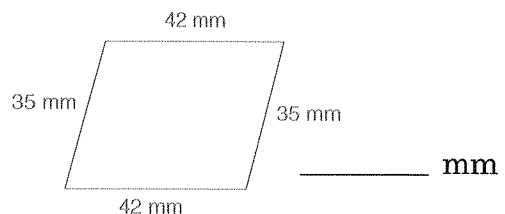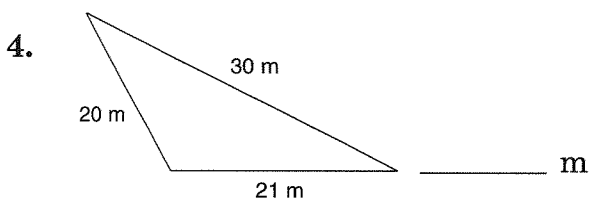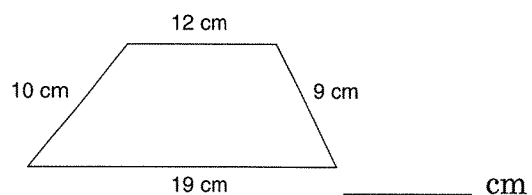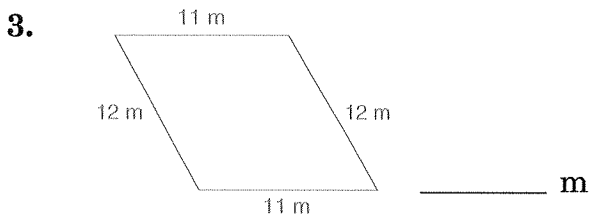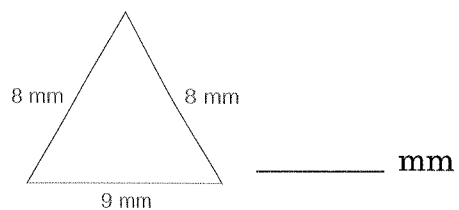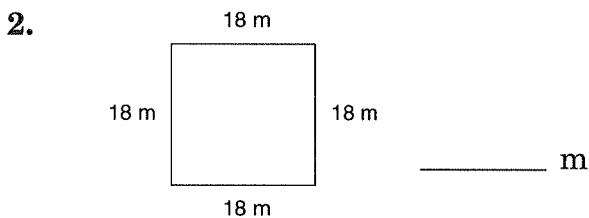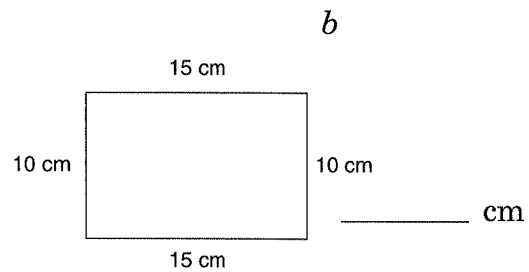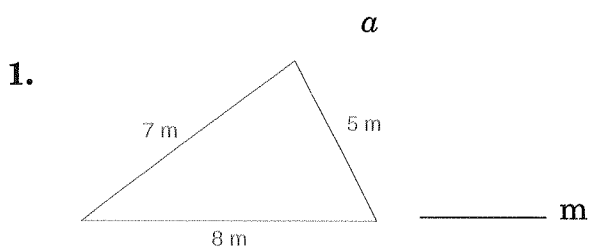
Lesson 5 Problem Solving

1. Madison is flying a kite that is shaped like a triangle. The sides of the kite are 120 cm, 90 cm, and 90 cm long. What is the perimeter of her kite?

   The perimeter of Madison's kite is _____ cm.

2. The Wessels' swimming pool is shaped like a rectangle. It is 7 m long and 5 m wide. What is the perimeter of the Wessels' pool?

   The perimeter of the swimming pool is _____ m.

3. Paul is planting a rectangular garden in his backyard. The garden will be 13 m long and 8 m wide. What will be the perimeter of Paul's garden?

   The perimeter of the garden will be _____ m.

4. The Turners have a sailboat. The sail on the boat is shaped like a triangle. The sides of the sail measure 7 m, 4 m, and 8 m. What is the perimeter of the sail on the Turners' sailboat?

   The perimeter of the sail is _____ m.

5. Trisha made a rectangular blanket for her baby cousin. The blanket is 120 cm long and 77 cm wide. What is the perimeter of the blanket?

   The perimeter of the blanket is _____ cm.

1.

2.

3.

4.

5.

Lesson 6 Area of a Rectangle

Area is the number of square units it takes to cover the figure.
You can find the area of a rectangle by multiplying the length times the width.

8 cm

5 cm ▢ 5 cm

8 cm

$$\begin{array}{r} 8 \\ \times 5 \\ \hline 40 \end{array}$$

9 m

13 m ▢ 13 m

9 m

$$\begin{array}{r} 13 \\ \times 9 \\ \hline 117 \end{array}$$
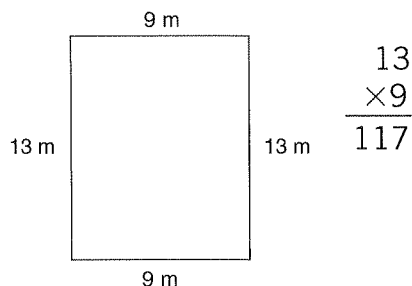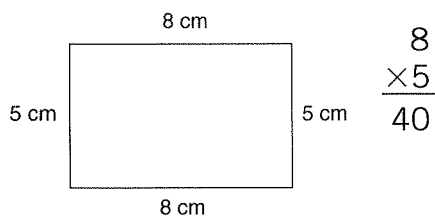
The area is ___40___ square centimetres (cm^2). | The area is ___117___ square metres (m^2).

Find the area of each rectangle.

a

1.

12 cm

4 cm ▢ 4 cm

12 cm

_____ cm^2

b

10 m

9 m ▢ 9 m

10 m

_____ m^2

2.

9 m

6 m ▢ 6 m

9 m

_____ m^2

15 km

5 km ▢ 5 km

15 km

_____ km^2

3.

11 m

8 m ▢ 8 m

11 m

_____ m^2

8 mm

7 mm ▢ 7 mm

8 mm

_____ mm^2

CHAPTER 16
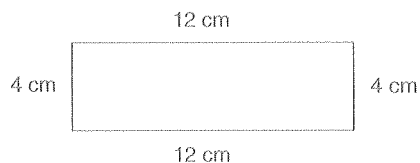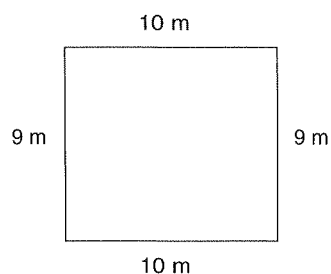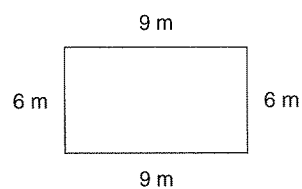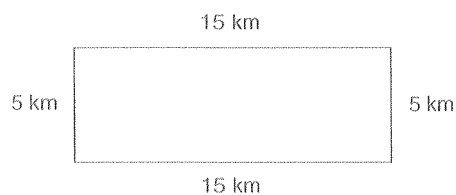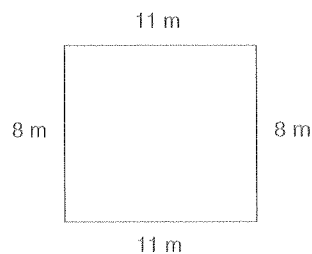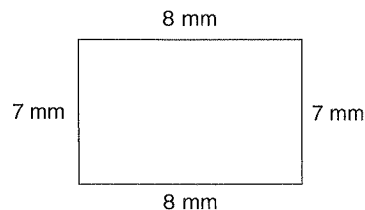
Lesson 6 Problem Solving

1. Mr. Kwan built a rectangular deck in his backyard. The deck is 7 m by 9 m. What is the area of the deck?

   The area of the deck is _____ m².

   1.

2. Patrick's computer monitor is shaped like a rectangle. It is 40 cm long and 22 cm high. What is the area of Patrick's computer monitor?

   The area is _____ cm².

   2.

3. The Williams family owns a farm. The farm is shaped like a rectangle. It is 8 km by 4 km. What is the area of the farm?

   The area of the farm is _____ km².

   3.

4. Maya is putting new carpeting in her bedroom. Her bedroom is 4 m long and 3 m wide. How many square metres of carpet does Maya need?

   Maya needs _____ m² of carpet.

   4.

5. Measure the rectangle using a ruler. Then find the area of the rectangle.

   5.
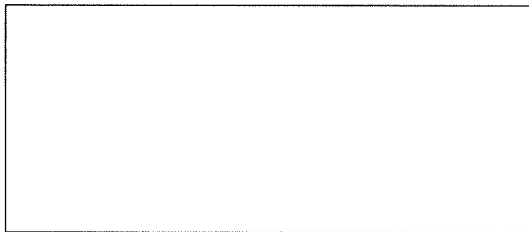
   The rectangle is _____ cm long.
   The rectangle is _____ cm wide.
   The area of the rectangle is _____ cm².

CHAPTER 16   PRACTICE TEST
Geometry

Name each figure.
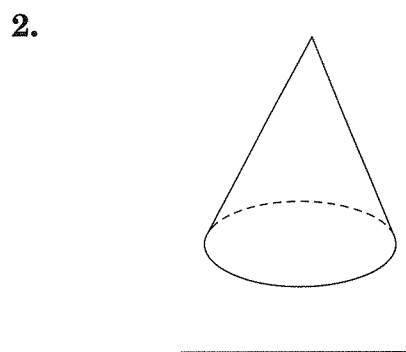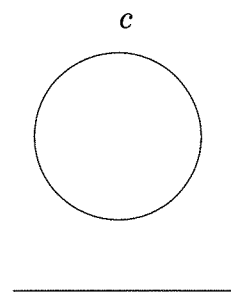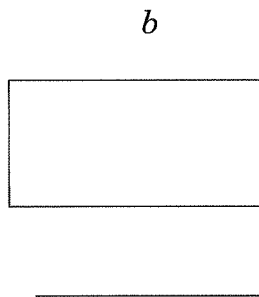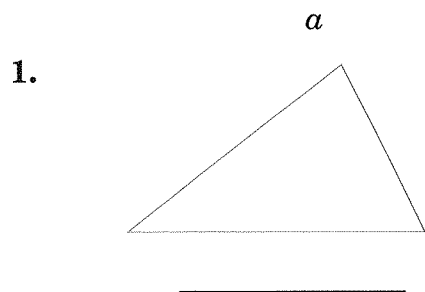
| *a* | *b* | *c* |

1.

_____   _____   _____

2.

_____   _____   _____

Does each figure have a line of symmetry? If so, draw the line of symmetry.

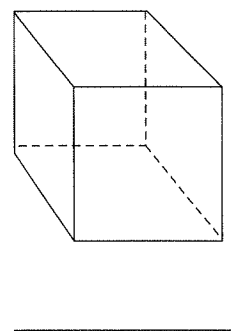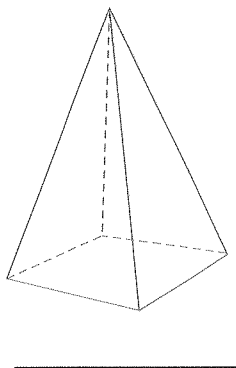| *a* | *b* | *c* |

3.

_____   _____

Find the perimeter of each figure.

| *a* | *b* |

4.

14 mm

8 mm   8 mm

14 mm

_____ mm

25 cm

12 cm

22 cm

_____ cm
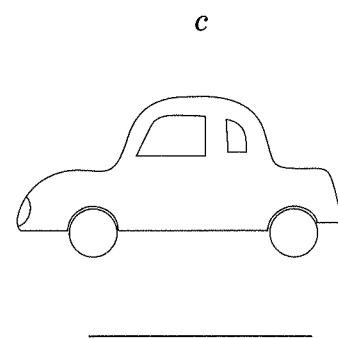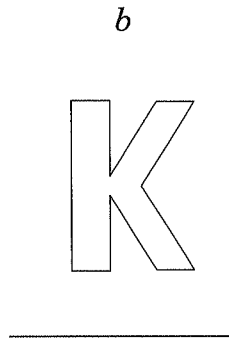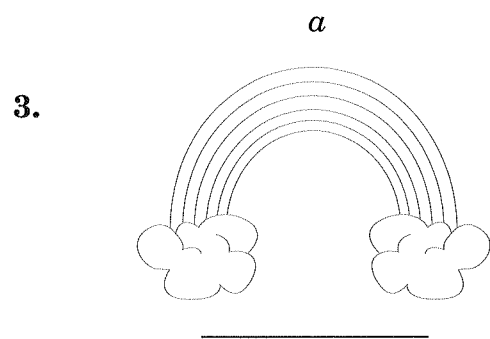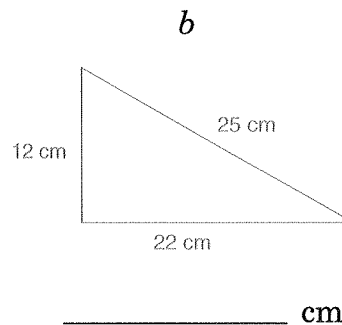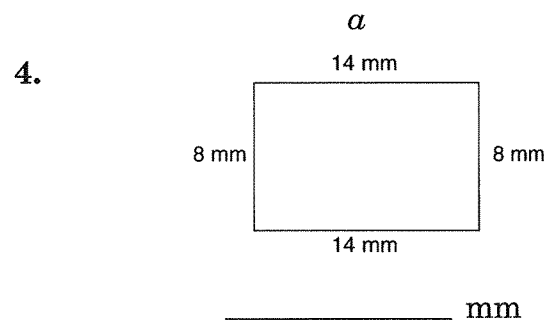
5. What is the area of the rectangle in problem **4a**? _____ mm^2

CHAPTER 16

CHAPTER 17 PRETEST
Graphs and Probability

Use the bar graph to answer each question.

1. How many students chose bananas as their favourite fruit? _____ students

2. How many students chose oranges as their favourite fruit? _____ students

3. What fruit did 12 students choose as their favourite? _____

4. What fruit did 18 students choose as their favourite? _____

Student' s Favourite Fruit

Use the pictograph to answer each question.

5. How many goals did Kareem score? _____

6. How many goals did Carlos score? _____

7. Which player scored 13 goals? _____
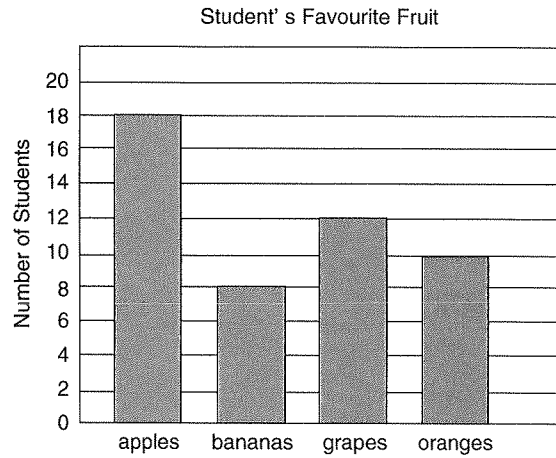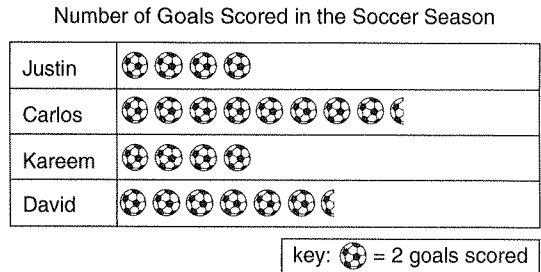
8. Which two players scored the same number of goals? _____

9. How many more goals did Carlos score than David? _____

Number of Goals Scored in the Soccer Season

Justin	⚽ ⚽ ⚽ ⚽
Carlos	⚽ ⚽ ⚽ ⚽ ⚽ ⚽ ⚽ ⚽ ⚽
Kareem	⚽ ⚽ ⚽ ⚽
David	⚽ ⚽ ⚽ ⚽ ⚽ ⚽ ⚽

key: ⚽ = 2 goals scored

Use the line graph to answer each question.

10. After 40 min, how many kilometres did D.J. run? _____ km

11. After 80 min, how many kilometres did D.J. run? _____ km

12. After how many minutes had D.J. run 8 km? _____ min

13. What is the greatest number of kilometres that D.J. ran in a 20-min period? _____ km

Distance D.J. Ran