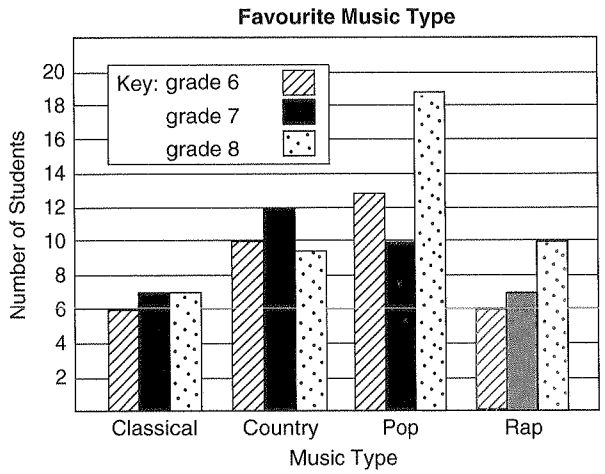
NAME _____

Lesson 1 Multiple Bar Graphs

Multiple bar graphs are useful when comparing data from more than one data set.



Different colours or patterns are used in the bars to identify each category of a multiple bar graph.

Complete the multiple bar graph for rap music.

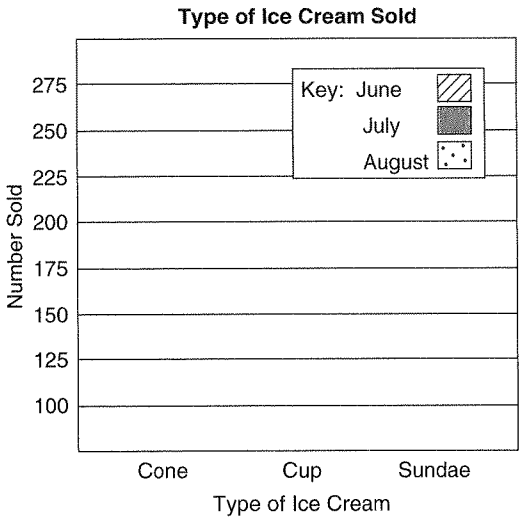
Students	Rap Music
grade 6	6
grade 7	7
grade 8	10

Use the bar graph above to answer each question.

1. How many grade 7s chose country music? _____ grade 7s
2. How many grade 6s chose classical music? _____ grade 6s
3. How many grade 8s chose pop music? _____ grade 8s
4. How many total students chose pop music? _____ students
5. What type of music did the same number of grade 7s and 8s choose as their favourite? _____
6. How many more students chose country than rap? _____ students

Use the information in the chart below to complete a multiple bar graph.

7. An ice-cream shop kept track of the following information for the summer months.



Type of ice cream	Number Sold		
	June	July	August
cone	250	275	260
cup	140	180	200
sundae	150	175	180

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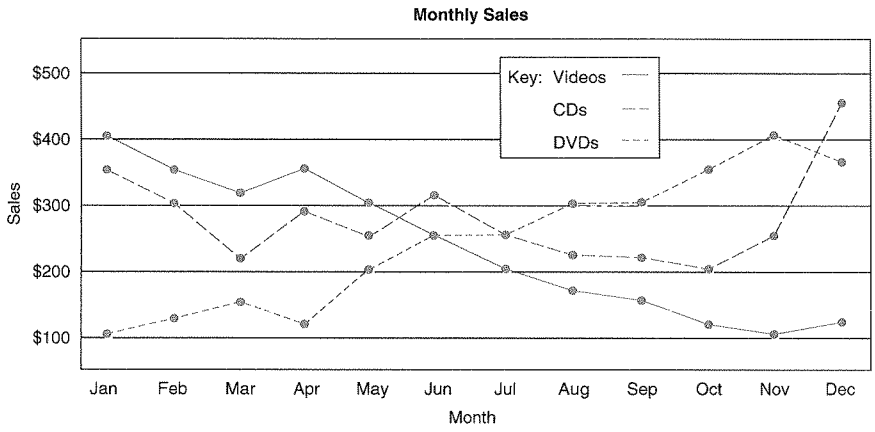
Lesson 2 Multiple Line Graphs

Multiple line graphs make it easy to see change and to compare numbers.



Notice that a different kind of line is used for each type of item sold. The key shows what each line represents.

Item	December Sales
Videos	$125
CDs	$450
DVDs	$360

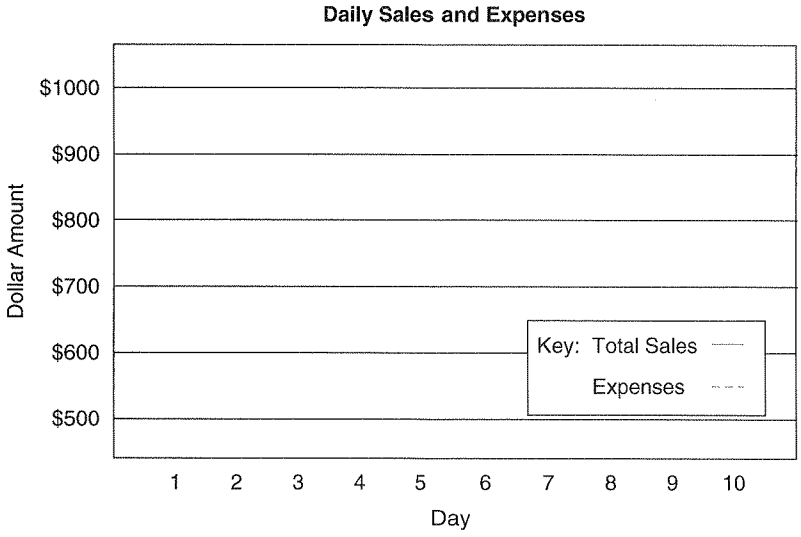
Use the line graph above to answer each question.

1. What were the video sales in January? $_____
2. What were the CD sales in February? $_____
3. What were the DVD sales in May? $_____
4. How much greater were DVD sales in September than video sales? $_____
5. Are video sales increasing or decreasing? _____
6. Are DVD sales increasing or decreasing? _____

Use the information in the chart below to complete a double line graph.

7. A company kept track of the following information for 10 days.

Day	Total Sales	Expenses (salaries, supplies, rent, utilities)
1	$875	$740
2	$950	$625
3	$1025	$550
4	$825	$980
5	$840	$600
6	$780	$910
7	$1050	$750
8	$775	$825
9	$960	$960
10	$1025	$840



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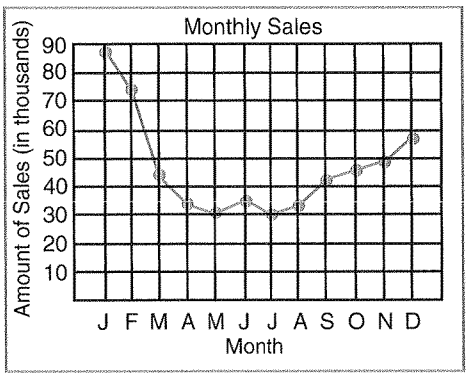
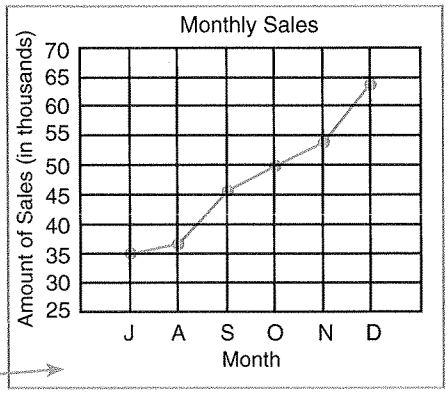
Lesson 3 Misleading Graphs

Graphs make information easy to read. But graphs can also be drawn so they create an incorrect impression.



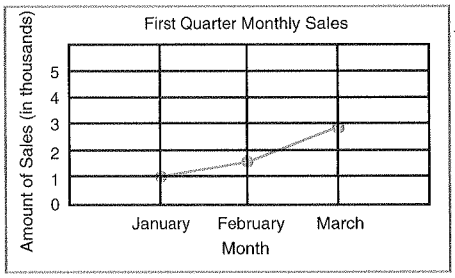
By not starting the scale at 0, it appears that sales are growing very fast.

By only showing part of the year's sales, the graph is very misleading!



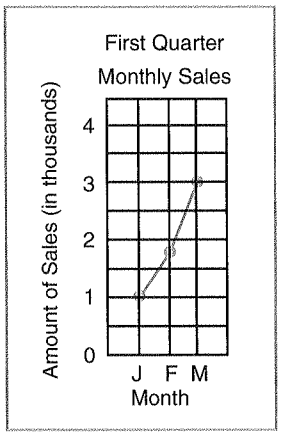
Use the graphs to help you answer each question.

1.



← Graph A

Graph B →



What has been done to make sales look better in Graph B than in Graph A?

_____

_____

2. How many new cars were sold in March? _____

3. How many new cars were sold in April? _____

4. How many new cars were sold in January? _____

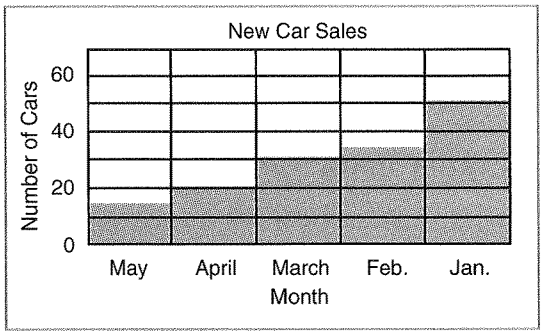
5. Are sales increasing or decreasing? _____

6. How is this graph misleading?

_____

_____

Graph C



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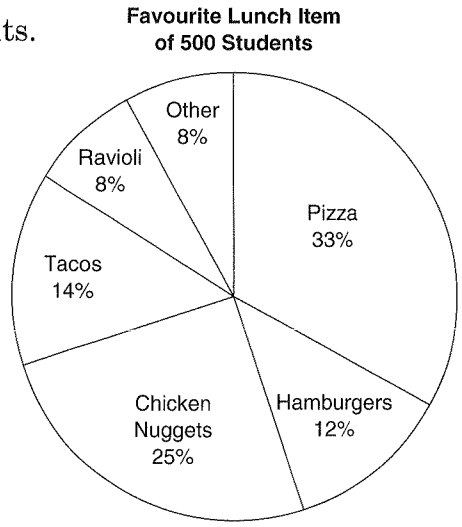
Lesson 4 Circle Graphs

A **circle graph** shows data divided into categories that represent a whole, or 100%.

The circle graph shows favourite lunch items of 500 students.



How many students chose pizza as their favourite lunch item?

33% of the students chose pizza.

What number is 33% of 500?

$n = 33\% \times 500$

$n = 0.33 \times 500$

$n = 165$

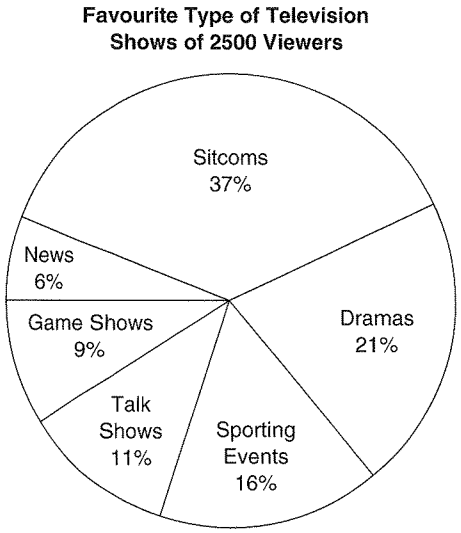
165 students chose pizza.

Use the circle graph above to answer each question.

1. How many students chose tacos? _____ students
2. How many students chose hamburgers? _____ students
3. How many students chose ravioli? _____ students
4. How many more students chose chicken nuggets than tacos? _____ students
5. What is represented by the "other" category in the circle graph?

_____

Use the circle graph on the right to answer each question.



6. How many viewers chose talk shows?

   _____ viewers
7. How many viewers chose sporting events?

   _____ viewers
8. How many viewers chose game shows?

   _____ viewers
9. How many viewers chose sitcoms?

   _____ viewers
10. How many more viewers chose dramas than game shows? _____ viewers
11. Which type of television show did 175 more viewers choose than game shows? _____ viewers

NAME _____

Lesson 5 Circle Graphs

You can make a circle graph from a set of percents that represent one whole, or 100%.

First, calculate the measure of each sector of the circle graph. Since there are 360° in a circle, find each percent of 360°.

Pepperoni: 40% of 360° = 0.40 × 360 = 144°

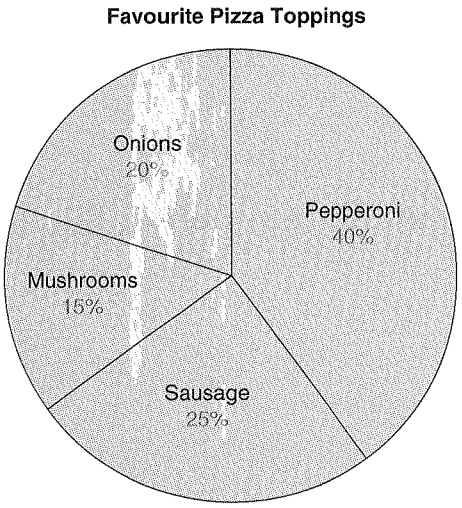
Sausage: 25% of 360° = 0.25 × 360 = 90°

Mushrooms: 15% of 360° = 0.15 × 360 = 54°

Onions: 20% of 360° = 0.20 × 360 = 72°

Favourite Pizza Topping	
Pepperoni	40%
Sausage	25%
Mushrooms	15%
Onions	20%

Next use a compass to draw a circle.
Then use a protractor to draw each sector of the circle.
Title the graph.



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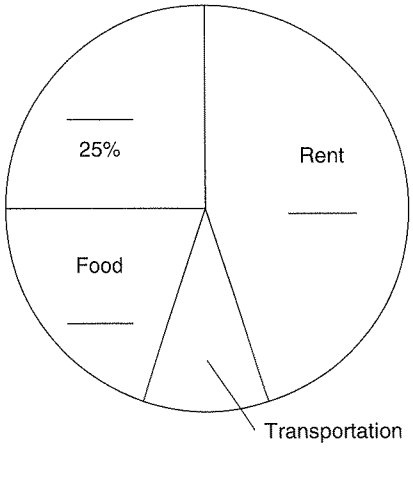
Use the information to complete the tables and circle graphs.

1.

Clarence's Budget	percent	degree
Rent		162°
Bills	25%	
Food	20%	
Transportation		36°



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Lesson 6 Stem-and-Leaf Plots

A **stem-and-leaf plot** organizes data into two columns. The values in the right column are called the **leaves.** These values represent the ones digit of each number. The values listed from least to greatest in the left column are called the **stems.** These values represent the remaining digits of each number. The **key** shows the meaning of each number in the stem-and-leaf plot.

Stem	Leaves
13	4
14	0 7
15	3
16	2
17	0 7
18	1 1 6

key: 13 | 4 represents 134

Use the following data set to create a stem-and-leaf plot.

153, 140, 186, 177, 181, 134, 162, 170, 147, 181

Notice that a leaf of 1 appears twice next to the stem 18 to represent 181 twice.

Create a stem-and-leaf plot for each set of data. Be sure to include a key for each stem-and-leaf plot.

	a	*b*
1.	74, 84, 91, 68, 78, 75, 95, 94, 88, 82	224, 206, 218, 215, 206, 248, 233, 221
2.	108, 134, 155, 149, 103, 131, 142, 152	84, 91, 103, 112, 108, 88, 95, 115, 86, 90

NAME _____

Lesson 7 Mean, Median, and Mode

The **mean** is the average of a set of numbers.

The **median** is the middle number of a set of numbers ordered from least to greatest. When there is an even amount of numbers in the data set, find the median by dividing the sum of the middle two numbers by 2.

The **mode** is the number or numbers that appear most often in the set of numbers. There is no mode if all numbers appear the same number of times.

Find the mean, median, and mode of the following set of numbers.

46, 55, 67, 47, 42, 55

mean: $46 + 55 + 67 + 47 + 42 + 55 = 312$

$$\frac{312}{6} = 52$$

List the numbers in order from least to greatest to help you find the median and mode.

42, 46, 47, 55, 55, 67

median: $\frac{47 + 55}{2} = \frac{102}{2} = 51$ **mode:** 55

Find the mean, median, and mode of each set of numbers.

	a	*b*
1.	95, 78, 83, 81, 96, 83, 86	13.1, 13.2, 11.7, 15.2, 11.7, 12.5
	mean: _____	mean: _____
	median: _____	median: _____
	mode: _____	mode: _____
2.	49, 51, 58, 45, 36, 51, 45, 33, 36, 36	376, 348, 318, 376, 372, 319, 327, 380
	mean: _____	mean: _____
	median: _____	median: _____
	mode: _____	mode: _____

CHAPTER 13

Lesson 7 Problem Solving

Answer each question.

1. The Cliffview High School football team scored the following number of points in each of their games this season: 21, 17, 35, 7, 10, 21, 27, 31, 42, 19.

What is the mean number of points the football team scored this season? _____ points

What is the median number of points the football team scored this season? _____ points

What is the mode number of points the football team scored this season? _____ points

1.

2. Elena is going to buy a DVD player. She went to several different stores and wrote down the prices of seven different DVD players. The prices are $96, $79, $133, $108, $79, $91, and $86.

What is the mean price of the DVD players? _____

What is the median price of the DVD players? _____

What is the mode price of the DVD players? _____

2.

3. Peter is on the diving team. On one dive at a diving meet, he scored the following points: 7.6, 8.5, 7.7, 8.5, 7.9, and 7.2.

What is Peter's mean score? _____ points

What is Peter's median score? _____ points

What is Peter's mode score? _____ points

3.

4. There are six employees that work in the human resources department of a company. Their annual salaries are $18 500, $34 290, $22 130, $18 500, $24 600, and $30 180.

What is the mean salary of the employees? _____

What is the median salary of the employees? _____

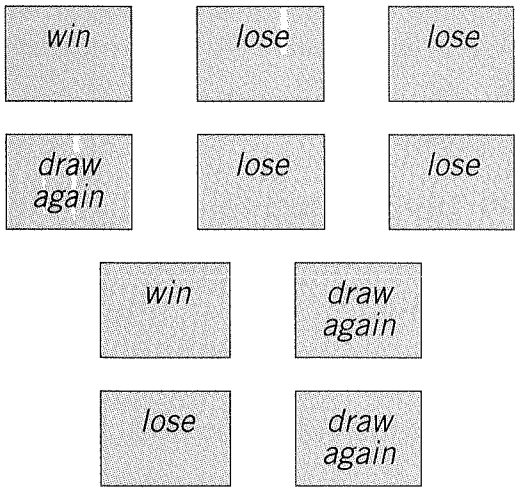
What is the mode salary of the employees? _____

4.

NAME _____

Lesson 8 Probability

You draw one of the cards shown at the right without looking. You would like to know your *chance* or **probability** of getting a card that says *win*.



Each card (possible result) is called an **outcome.** There are 10 cards. There are 10 possible outcomes. Since you have the same chance of drawing any of the cards, the outcomes are **equally likely.**

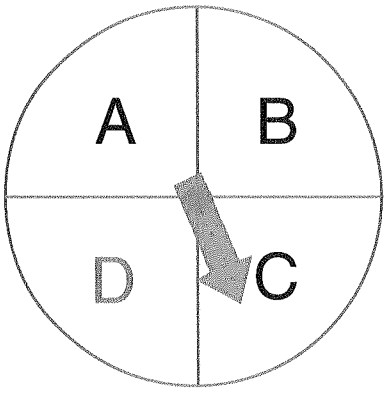
number of outcomes that say *win*

$\frac{2}{10}$ or $\frac{1}{5}$ Write the probability in simplest form.

number of possible outcomes

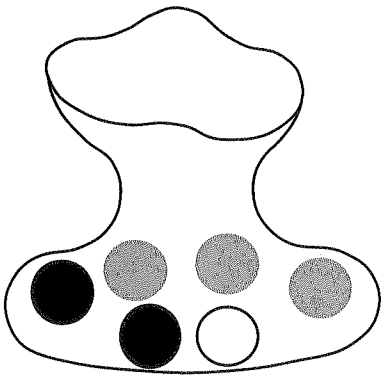
The probability of drawing a card that says *win* is $\frac{1}{5}$.

You spin the spinner shown at the right. Find the probability of the spinner stopping on



1. a blue letter _____
2. the letter A _____
3. a black letter _____
4. the letter C _____
5. a black letter B _____
6. the letter D or B _____

You pick a marble without looking. In simplest form, what is the probability of picking



7. white _____
8. black _____
9. blue _____
10. a marble that is **not** white _____

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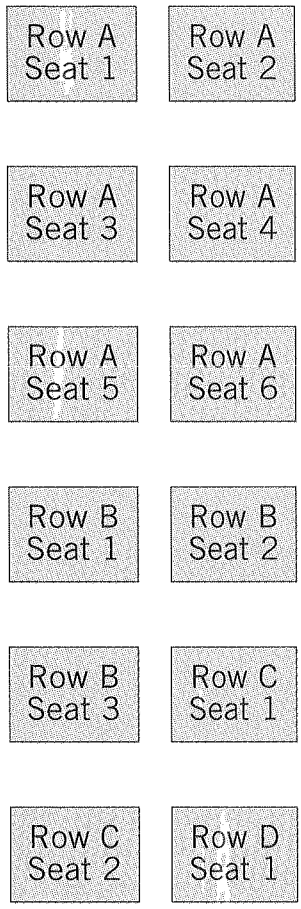
Lesson 8 Problem Solving

Use the tickets shown at the right to solve each problem. You are to draw one ticket without looking to find where you will sit at the theatre. Write each probability in simplest form.



1. What is the probability that you will sit in row A?

The probability is _____.

2. What is the probability that you will sit in seat 3?

The probability is _____.

3. What is the probability that you will sit in row B?

The probability is _____.

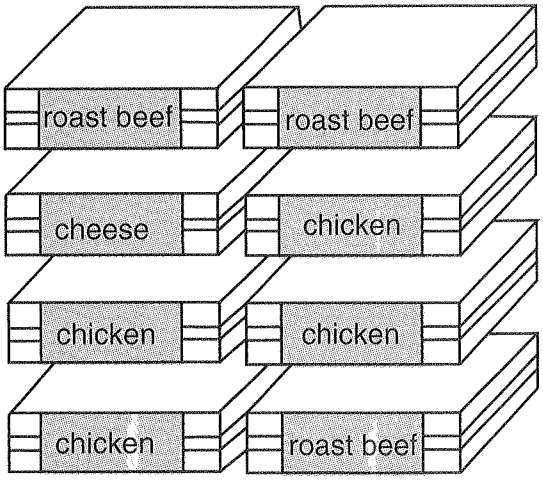
4. What is the probability that you will sit in seat 1?

The probability is _____.

5. What is the probability that you will **not** sit in seat 1?

The probability is _____.

The sandwiches at the right are at a picnic. You pick one sandwich without looking. Solve each problem. Write each probability in simplest form.



6. What is the probability that you will pick roast beef?

The probability is _____.

7. What is the probability that you will pick cheese?

The probability is _____.

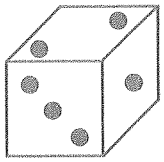
8. What is the probability that you will **not** pick cheese?

The probability is _____.

NAME _____

Lesson 9 0 and 1 Probabilities

The faces of a number cube have 1, 2, 3, 4, 5, and 6 dots.
You roll one number cube one time.



probability of rolling a 2	probability of rolling a number less than 7	probability of rolling a 7
$\frac{1}{6}$	$\frac{6}{6}$ or 1	$\frac{0}{6}$ or 0
	A probability of 1 means the outcome is **certain** to happen.	A probability of 0 means the outcome will **never** happen.

To decide which committee you will be on, you are to draw one of the slips shown at the right without looking. These are the only committees you can be on. Write each probability in simplest terms.

refreshments | cleanup

refreshments | cleanup

refreshments | cleanup

decorations | cleanup

1. How many slips are there? _____ slips

2. What is the probability of being on the cleanup committee? _____

3. What is the probability of being on the invitation committee? _____

4. What is the probability of being on the decorations committee? _____

5. What is the probability of **not** being on the decorations committee? _____

6. What is the sum (total) of the probabilities in problems **4** and **5**? _____

7. What is the probability of being on the refreshments committee? _____

8. When you add the probability that an outcome **will** happen and the probability that it **will not** happen, the answer is _____.

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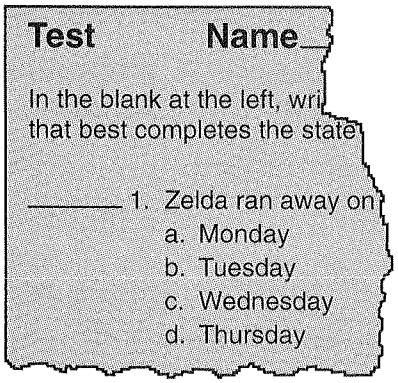
Lesson 9 Problem Solving

Solve each problem. Write each probability in simplest form.

1. You are taking a multiple-choice test. Each item has four choices. You have no idea which is the correct answer. What is the probability that you will guess the correct answer?

The probability is _____.



2. Suppose that each item on the test in problem 1 had five choices. You still have no idea which is the correct answer. What is the probability that you will guess the correct answer?

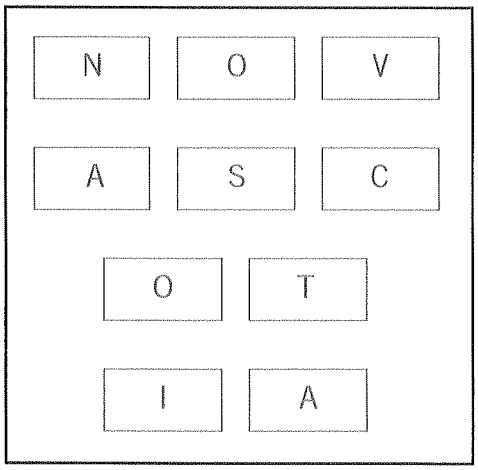
The probability is _____.

3. You draw one marble from a bag containing six marbles. There are four white marbles and two black marbles. What is the probability that you will draw a red marble?

The probability is _____.

4. You pick one of the letter cards shown at the right without looking. What is the probability that you will pick a vowel (a, e, i, o, u,)?

The probability is _____.

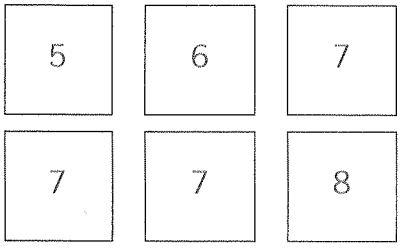


5. You pick one of the letter cards shown at the right without looking. What is the probability that the letter on the card is in the words *NOVA SCOTIA*?

The probability is _____.

6. You pick one of the letter cards shown at the right without looking. What is the probability that the letter on the card is **not** in the words *NOVA SCOTIA*?

The probability is _____.



7. You pick one of the number cards shown at the right without looking. What is the probability that you will pick a number greater than 4?

The probability is _____.

NAME _____

Lesson 10 Sample Spaces

Suppose you have a choice of jewellery. You can have a bracelet, a necklace, or a pin. The jewellery can be gold, silver, or platinum.

You can show all the different outcomes in a table like the one shown at the right.

A list or a table of all the possible outcomes is called a **sample space.**

		Jewellery Piece		
		bracelet (B)	*necklace (N)*	*pin (P)*
Colour	gold (g)	Bg	Ng	Pg
	silver (s)	Bs	Ns	Ps
	platinum (p)	Bp	Np	Pp

Use the sample space above to answer each question.

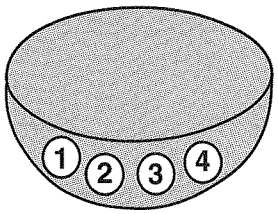
1. How many possible outcomes are there?

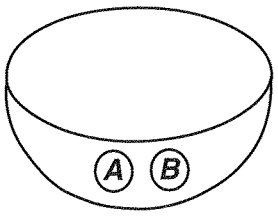
_____

2. Suppose your jeweller chooses a combination for you at random.

What is the probability of getting a gold necklace? _____

Without looking, you pick marbles from two bowls shown at the right. Complete the sample space to show the outcomes. Then use the table to answer each question. Write each probability in simplest form.





		Blue Bowl			
		1	*2*	*3*	*4*
White Bowl	A	1A	2A		
	B	1B			

3. How many outcomes are there? _____

4. What is the probability of drawing a 2 and an A? _____

5. What is the probability of drawing a B and an even number? _____

6. What is the probability of drawing any number and a B? _____

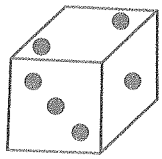
CHAPTER 13

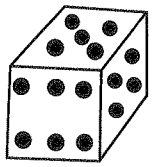
Lesson 10 Problem Solving

Complete the sample space below to show all the possible outcomes of rolling a blue number cube and a black number cube. Then use the sample space to solve each problem. Write each probability in simplest form.

Blue Number Cube

Black Number Cube	1	2	3	4	5	6
1	1, 1	2, 1	3, 1	4, 1		
2	1, 2	2, 2	3, 2			
3	1, 3					
4	1, 4					
5						
6						





1. What is the probability of rolling a 1 and a 3?

The probability is _____.

2. What is the probability of rolling 4s on both number cubes?

The probability is _____.

3. What is the probability of rolling 4, 5 or 5, 4?

The probability is _____.

4. What is the probability of rolling two number cubes that total 10?

The probability is _____.

5. What is the probability of rolling two number cubes that total 20?

The probability is _____.

6. What is the probability of rolling two number cubes that total less than 13?

The probability is _____.

NAME _____

Lesson 11 Problem Solving

A local store is running a contest. Each time you enter the store, you get a ticket. The sign below shows the probability of winning a prize. Use the sign to solve each problem. Write each probability in simplest form.

1. What is the probability of winning the grand prize?

The probability is _____.

2. What is the probability of winning the second prize?

The probability is _____.

3. What is the probability of winning the fifth prize?

The probability is _____.

4. What is the probability of not winning any prize?

The probability is _____.

BRUNS' SHOE STORE	
Chances of winning:	
Prize	*Number of Tickets*
Grand prize	1
Second prize	5
Third prize	10
Fourth prize	20
Fifth prize	25
Total number of tickets to be given out: 1000	

One person will be selected at random to represent the company at a special event. The table below shows how many people volunteered to be selected. Each name is written on a slip of paper, and one slip is to be drawn. Use the table to solve each problem. Write each probability in simplest form.

5. What is the probability that a woman will be selected?

The probability is _____.

6. What is the probability that a person from Department C will be selected?

The probability is _____.

7. What is the probability that a woman from Department A will be selected?

The probability is _____.

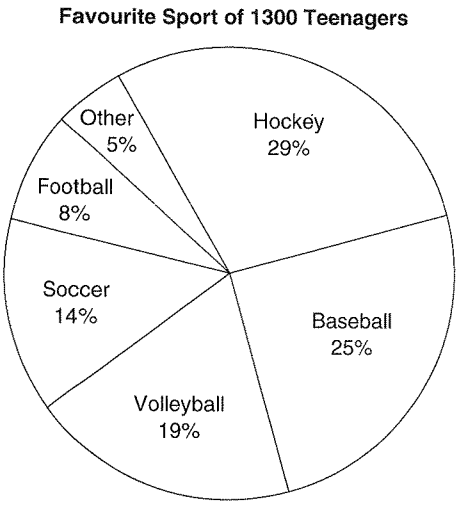
Department	*Women*	*Men*
A	0	5
B	6	1
C	2	10
D	12	4

CHAPTER 13

NAME _____

CHAPTER 13 PRACTICE TEST
Graphs and Probability

Use the circle graph at the right to answer each question.



1. How many teenagers chose baseball? _____
2. How many teenagers chose football? _____
3. How many teenagers chose volleyball? _____
4. How many more teenagers chose hockey than soccer? _____
5. What is represented by the "other" category in the circle graph?

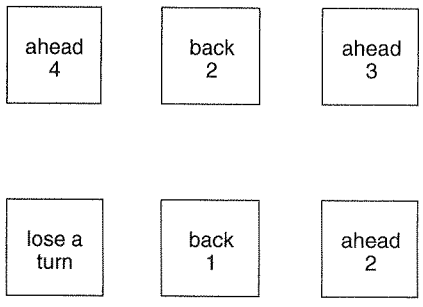
_____

_____

Find the mean, median, and mode of each set of numbers.

	a	*b*
6.	93, 88, 76, 88, 79, 90, 76, 91, 76, 93	26.5, 19.7, 16.9, 20.2, 14.3, 27.6, 19.7
	mean: _____	mean: _____
	median: _____	median: _____
	mode: _____	mode: _____

You roll a number cube with faces marked as shown at the right. Write the probability in simplest form that you will roll.



7. ahead 4 _____
8. back 3 _____
9. ahead 2, 3, or 4 _____
10. a face with an odd number _____
11. a face that does not say back _____