ROUNDING A NUMBER

To **round** a decimal number, look at the digit to the right of the digit in the place value to which we are to round. If this digit is greater than or equal to 5, increase the digit in the desired place value by 1. If the digit to the right is less than 5, do not change the digit in the place value to which we are to round. We then replace all other digits to the right by 0.

Ex.: 4.7852 rounds to
4.8 to the nearest tenth
4.79 to the nearest hundredth
4.785 to the nearest thousandth

10 Round the following numbers to the indicated precision.

Number	To the nearest tenth	To the nearest hundredth	To the nearest thousandth
5.638 4	*5.6*	*5.64*	*5.638*
2.359 9	*2.4*	*2.36*	*2.360*
0.175 4	*0.2*	*0.18*	*0.175*
0.997 8	*1.0*	*1.00*	*0.998*

11. The table below shows Mrs. Finch's supermarket expenses. The price of each item includes the taxes.

Item	Cost	Rounded cost
Peanut butter	$2.87	*$3*
Dishwashing liquid	$4.25	*$4*
Pasta	$1.59	*$2*
Tuna	$1.19	*$1*
Cereal	$3.74	*$4*

She wants to estimate the amount of her bill. Help her by rounding each amount to the nearest unit in the third column.

$14

12 Nathalie is a cross-country skier. She has a choice of five courses. She decides to choose the course whose distance, rounded to the nearest tenth of a kilometre, has the digit 7 (her lucky number) in the tenths position.

Course	Distance
Beaver	3.598 km
Weasel	2.772 km
Fox	1.679 km
Skunk	3.798 km
Deer	2.625 km

Which course does she choose? *The Fox course*

5. a) On the number line below, place all points having an even abscissa value less than 10.

b) If a represents an even natural number, then indicate if the following numbers are even or odd.

1. $a + 1$ *odd* 2. $a - 1$ *odd* 3. $a + 2$ *even*

6. Replace the variable a by the greatest possible natural number.

a) $a \leq 43$ *43* b) $a < 28$ *27* c) $334 > a$ *333* d) $134 \geq a$ *134*

7. List all digits, from 0 to 9, which could be placed in each of the boxes below in order to make a true statement.

a) $5\square < 54$ *1, 2, 3, 4* b) $13\square < 145$ *0, 1, 2, 3, 4, 5, 6, 7, 8, 9*

c) $3\square 7 < 336$ *0, 1, 2* d) $63\square < 630$ *none*

8. The table below indicates the population and the total surface area of the different provinces and territories of Canada in 2001.

Province or territory	Population	Surface area (in km^2)
Newfoundland	512 930	370 502
Prince Edward Island	135 294	5 684
Nova Scotia	908 007	52 917
New Brunswick	729 498	71 356
Quebec	7 237 479	1 357 743
Ontario	11 410 046	907 656
Manitoba	1 119 583	551 938
Saskatchewan	978 933	586 561
Alberta	2 974 887	639 987
British Columbia	3 907 738	926 492
Yukon	28 674	474 707
Northwest Territories	37 360	1 141 108
Nunavut	26 745	1 925 460

a) Which province or territory has:

1. the greatest population? *Ontario*
2. the smallest population? *Nunavut*
3. the greatest surface area? *Nunavut*
4. the smallest surface area? *Prince Edward Island*

b) List all provinces or territories which have:

1. a population greater than 730 000 inhabitants and less than 1 200 000 inhabitants; *Nova Scotia, New Brunswick, Manitoba, Saskatchewan*
2. a surface area greater than 5000 000 km^2 and less than 920 000 km^2; *Ontario, Manitoba, Saskatchewan, Alberta*
3. a population of approximately 1 000 000 inhabitants; *Manitoba, Saskatchewan*
4. a surface area of approximately 900 000 km^2; *Ontario, British Columbia*

ACTIVITY 2 Rounding

The circus "Under the Sun" is in town. At their previous performance, 12 850 people attended the show. The gross income was $199 250 and the net profit for this performance was $25 590.

a) To the nearest thousand, what was the number of spectators at this performance?
13 000 spectators

b) To the nearest one thousand dollars, what was the gross income for the show? *$199 000*

c) Round the net profit for the evening to the nearest thousand. *$26 000*

ROUNDING A NUMBER

- To round a number to the nearest hundred, look at the digit immediately to the right of the hundred's digit.
  - if it is greater than or equal to 5, increase the hundred's digit by 1.
  - if it is less than 5, do not change the hundred's digit.

  Then change all digits to the right of the hundred's digit to zero.

  Ex.: 3 4 ⑥ 8 is rounded to 3500 to the nearest hundred since $6 \geqslant 5$

  3 4 ④ 8 is rounded to 3400 to the nearest hundred since $4 < 5$.
- This procedure can be generalized by the example below:

  Ex.: 783 567 is rounded to:
  - 783 600 to the nearest hundred.
  - 784 000 to the nearest thousand.
  - 780 000 to the nearest ten thousand.

9. In each of the following situations, state if the number given is an exact or a rounded value.

a) At a hockey game, there were 12 384 spectators. *exact*

b) In 1990, Mexico city had 26 300 000 inhabitants. *rounded*

c) Mount McKinley is the highest mountain of the United States, measuring 6 194 m. *exact*

d) 1 km^2 corresponds to 1 000 000 m^2. *exact*

10. To what precision should you round:

a) the price of your CD player? *to the nearest hundred*

b) the number of CD's on your shelves? *to the nearest ten*

c) the price of a car? *to the nearest ten thousand*

d) the number of spectators at a rock concert? *to the nearest thousand*