

1.3 ROUNDING & ESTIMATION WITH WHOLE NUMBERS

Often, when using mathematics, an estimate will suffice as opposed to an actual calculation. To estimate an answer we usually round off first, then calculate with numbers that are easier to work with. The examples below show how to round off numbers and then how to estimate your answer.

EXAMPLE #1: Round 3274 to the nearest **ten**.

3274 becomes 3270

{The '7' is in the tens place. If the number behind the '7' is a 5 or larger, the '7' becomes an '8'. Otherwise it stays the same as it did in this case.

EXAMPLE #2: Round 42 938 to the nearest **thousand**.

42 938 becomes 43 000

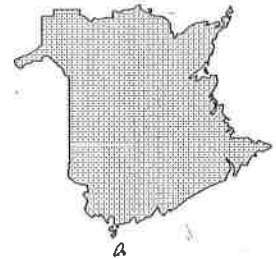
{The '2' is in the thousands place. If the number behind the '2' is a 5 or larger, the '2' becomes a '3'. Otherwise it would have stayed the same.

EXAMPLE #3: The area of New Brunswick is 73 436 km². In 1979 its population was 699 920. Approximately how many people per square kilometre (km²) were there in N.B. in 1979?

Actual: $699\,920 \div 73\,436 = ?$

Approximate: $700\,000 \div 70\,000 = 10$

\therefore there were approximately 10 people/km² in N.B. in 1979.



A. Round each to the place indicated.

1. 4357 (tens) **4360**

2. 35 214 (hundreds) **35 200**

3. 86 (tens) **90**

4. 8888 (tens) **8890**

5. 52 934 (hundreds) **52 900**

6. 39 (hundreds) **0**

7. 862 (hundreds) **900**

8. 5723 (thousands) **6000**

9. 93 499 (thousands) **93 000**

10. 9999 (thousands) **10 000**

B. Which of the following is an estimate or an exact amount?

1. There are 26 pupils in class. **exact**

2. Henry thinks that he has almost \$100 in his wallet. **estimate**

3. The population of Canada is 33 000 000. **estimate**

4. Jarrod scored 47 goals last year. **exact**

5. Jarrod should score 55 goals next year. **estimate**

C. Solve each of the following:

1. Commonwealth Stadium in Edmonton seats 62 537 people. If the stadium was almost filled to capacity for 8 consecutive football games, approximately how many fans attended the games?

500 296 fans

2. Canada is the world's second largest country covering an area of 9 976 139 km².

a) What was the approximate number of people per km² in Canada in 1961 if the population was 19 583 000?

2

b) What was the population density in 1981 if the population was 25 000 000?

2.5

3. What is the approximate average of 6345, 2532, 1752, and 8496?

between 4000 and 5000

D. Chose an estimate from the list of answers provided for each question below.

1. $48 \times 105 =$ 5000

ANSWERS

2. $1430 + 2596 =$ 4000

500

3. $83\,506 - 82\,953 =$ 500

1000

4. $2600 \div 53 =$ nothing close

2000

5. $35 \times 35 =$ 1000

3000

6. $9405 - 6536 =$ 3000

4000

7. $830 \times 38 =$ nothing close

5000

8. $8962 \div 46 =$ nothing close

6000