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Topic: APPROXIMATIONS

- OBJECTIVES: Round off the measurements to
- The nearest unit
 - the nearest fraction of a unit.

Introduction to approximations

A measurement can never be exact. When we measure time, length, volume or mass we are only able to take the approximate measurement due to the limitation of our measuring instruments. Therefore we can define approximation as the value of something based on informed knowledge. Approximate means to "estimate".

Rules to follow.

- If the number preceding the figure to be rounded off is greater than or equal to 5, then add 1 to the round off figure.
- If the figure preceding the figure to be rounded off is less than 5, then leave the round off figure as it is. The round off digit is unchanged if the next digit is less than 5.

Example 1

- Round off 47.285 km to the nearest kilometre.

Solution

Hint - check rule number 2

47.285 km

47 km to the nearest km.

EXAMPLE 2

- (1) Round off the following number to the nearest 10, and 100.
2858

Solution

- (a) 2858 to the nearest 10
= 2860 to the nearest 10

HINT: The number after 5 is 8, which is greater than 5, so we add 1 to the round off figure and it becomes 6. 8 becomes a zero.

- (b) to the nearest 100

2858
= 2900 to the nearest. (check the hint in question 1(a)).

Fraction of Unit

HINT: To round off to the nearest fraction of a unit, follow the same procedure used for rounding off to the nearest units.

EXAMPLE

- (1) Round off the fraction of the unit stated below.
(a) 65.855 km, to the nearest hundredth of a kilometre.

Solution

65.855 km
= 65.86 to the nearest hundredth of a kilometre.

HINT: When you have 65.855 km do 65.855 and it becomes 65.86

100
because the number after 5 is greater than 5, so we add a 1 to 5.

ACTIVITY

① Round off 15.56 cm to the nearest.

(a) Centimetre

(b) Kilometre.

② Round off 5297.5

(a) to the nearest 100

(b) to the nearest 1000.

③ Round off the fraction of the unit stated below.

(a) 784.956 to the nearest hundredth of a kilometre.

(b) 53.27 to the nearest tenth of a centimetre.