Monyetla Bursary Project

Grade 11

Lesson 2: Measurement Questions

QUESTION 1:

Below is a diagram of a bottle of jam. The label is pasted around the bottle but does not overlap at all. The radius of the bottle is 4 cm and the height is 12 cm. Use the following to answer the questions below:

Volume of cylinder $= \pi \times r^2 \times h,\ \pi = 3{,}142$

Circumference of a circle $= 2 \times \pi \times r$

1.1   Calculate the volume of one bottle.   (3)

1.2   Calculate the circumference of one of the bottles.   (2)

1.3   Determine the length and breadth of the label. The label is pasted 1 cm from the bottom of the bottle and 2 cm from the top.   (4)

1.4   Annie calculated the number of labels as follows:

Area of page ÷ area of one label

Explain why you cannot use this method and elaborate on the method you should use, with reasons.   (4)

1.5 The dimensions of a sheet of paper are 75 cm by 65 cm, and the labels are printed with the length in line with the sheet of paper's length and the width in line with the sheet of paper's width.

Calculate the maximum number of labels that can be printed on one sheet. (5)

1.6 If they want to pack 24 bottles, in a single layer, 4 in the width and 6 in the length, what must the size of the box be? (4)

1.7 What percentage of the volume of the box in 1.6 is not used? (7)

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QUESTION 2:

> Your motorbike takes 20 ℓ of petrol and uses 1 ℓ every 22 km. You travel 5,7 km to school every morning and 5,7 km back home again in the afternoon.

2.1 How many trips (to and from school) can you make with one tank of petrol? (5)

2.2 How many miles is one such trip to and from school if
1 mile = 1,6 km? (2)

2.3 School starts at 07:40. You like to reach school at 10 minutes before the bell to be on time for your first period. It takes you 17 minutes to get to school in the morning traffic. What is the latest you should leave your house to be at school by 07:30? (3)

2.4 How many litres (rounded to 2 decimal places) do you use to travel 1 km with your motorbike? (2)

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