

M2.1 Relationships and rounding

Key idea

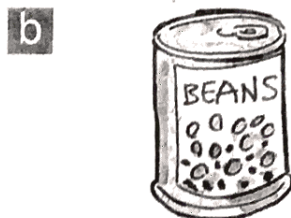
1 tonne is 1000 kg.

A1

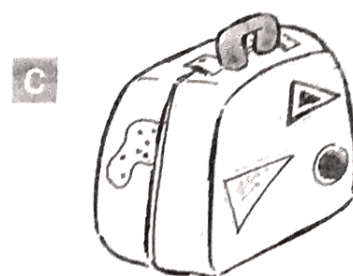
Look at these items. Write the mass that would be most appropriate for each one.



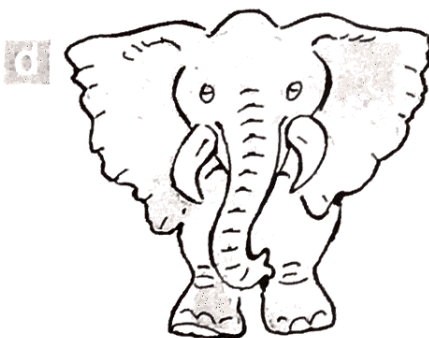
30 g 3 kg 30 kg



450 g 4.5 kg 45 kg



250 tonnes 2.5 kg 25 kg



36 kg 360 kg 3.6 tonnes



2.7 g 27 g 270 g



150 g 1.5 kg 15 kg

A2

A zoo orders food supplies for the animals. Copy and complete the following table.

Food	Mass	Mass in tonnes	Rounded to the nearest tenth of a tonne
fruit	2470 kg	2.47	2.5
vegetables	2010 kg	2.01	2.0
meat	1650 kg	1.65	1.7
fish	1160 kg	1.16	1.2
grains	2920 kg	2.92	2.9
hay	1535 kg	1.535	1.5

B1

A fizzy drinks factory sells drinks in crates. It makes 7.186 tonnes of cola crates, 5.573 tonnes of lemonade crates, 3.918 tonnes of orangeade crates, 3.354 tonnes of cherryade crates and 2.019 tonnes of ginger beer crates.

- a Convert each mass to kilograms to find the total mass in kilograms.
 cola - 7186 kg lemonade - 5573 kg orangeade - 3918 kg cherryade - 3354 kg ginger - 2019 kg
 Total = 22050 kg
- b Now round the mass of each type of drink to the nearest tonne.
 cola - 7 t lemonade - 6 t orangeade - 4 t cherryade - 3 t ginger - 2 t
- c Use these rounded masses to find approximately how many tonnes of drinks crates were sold in total. 22 tonnes
- d Convert your answer to c to kilograms. Compare this with the total mass you found in a. 22,000 kg

Each full drinks crate weighs 25 kg. A van can hold 24 crates. A lorry can hold 120 crates.

- e How many tonnes of drink can 1 lorry deliver? 3 t
- f How many tonnes of drink can 1 van deliver? 0.6 t
- g How many lorries or vans would be needed to deliver each type of drink?



cola
3 lorries / 12 vans
lemonade
2 lorries / 10 vans
orangeade
2 lorries / 7 vans
cherryade
2 lorries / 6 vans
ginger
1 lorry / 4 vans

B2

Here is a list of things you might want to take on your trekking holiday.

- a Copy and complete this table.

Item	Weight	Weight in kilograms	To nearest kilogram	To nearest tenth of a kilogram
Books	1239 g	1.239	1	1.2
Sweets and snacks	1050 g	1.05	1	1.1
Clothes	7354 g	7.354	7	7.4
Walking boots	1371 g	1.371	1	1.4
Sleeping bag	2128 g	2.128	2	2.1
First aid kit	966 g	0.966	1	1.0
Water	835 g	0.835	1	0.8

Your empty backpack weighs 1.5 kg.

- b** What is the total mass of your full backpack in grams? 16443 g
- c** What is the mass of your full backpack rounded to the nearest kilogram? 16 kg
- d** What is the mass of your full backpack rounded to the nearest tenth of a kilogram? 16.4 kg
- e** Is there an excess baggage charge due? no

C1 A plane holds 410 people. Every passenger has 20 kg of check-in luggage and 10 kg of hand luggage.

- a** How many tonnes of check-in luggage will be on the plane? 8.2 t
- b** How many tonnes of hand luggage will be on the plane? 4.1 t

C2 Every passenger is given a blanket weighing 190 g, a cushion weighing 176 g, a free drink weighing 181 g and a meal weighing 522 g.

What is the total mass to the nearest tenth of a kilogram of:

- | | | | | |
|--------------------|--------------------|------------------|-----------------|---------------------------|
| a blankets? | b cushions? | c drinks? | d meals? | e all 4 items? |
| 77.9 kg | 72.2 kg | 74.2 kg | 214 kg | either: 438.3 kg |

C3 How many tonnes do all the luggage, blankets, cushions, drinks and meals weigh altogether, to the nearest tenth of a tonne? 0.44 t

**Key
idea**

1 tonne is 1000 kg.