1. Billy is saving for a new skateboard.
The skateboard costs £44.50.
Billy is saving £3.50 each week.

After how many weeks will Billy be able to afford the skateboard?

\[
44.50 \div 3.50 = 12.71...
\]

13 weeks

2. Audrey bought three cakes for a party.
She is going to cut each cake into equal slices.
She wants each person to have two slices.
There will be 22 people at the party.

How many slices should Audrey cut each cake into?

\[
22 \times 2 = 44 \text{ slices needed}
\]

\[
44 \div 3 = 14.6
\]

15 slices

3. Carrie is cleaning her house for a viewing.
She has 3 and a half hours until the viewing.
Carrie’s house has 13 rooms.

Carrie wants to spend 15 minutes cleaning each room.
Does she have enough time?

\[
13 \times 15 = 195 \text{ minutes needed}
\]

\[
3.5 \times 60 = 210 \text{ minutes}
\]

Yes
4. Anita is preparing some hot drinks for an event. She needs to make 120 cups of coffee. Each cup of coffee requires 6 grams of coffee. Coffee is sold in jars which cost £2.20 each. The jars contain 80 grams of coffee.

Work out how much it will cost.

\[
120 \times 6 = 720 \text{ g of coffee required} \\
720 \div 80 = 9 \text{ jars required} \\
9 \times 2.20 = £19.80
\]

5. Fran is catering for a cricket match. Each person needs a sausage roll and a cupcake. Sausage rolls come in packs of 6 which cost £1.50. Cupcakes come in packs of 8 which cost £1.95. Fran needs to cater for two teams of 11 players and the two umpires.

Work out how much it will cost.

\[
11 \times 2 + 2 = 24 \text{ people} \\
24 \div 6 = 4 \text{ packs of sausage rolls required} \\
4 \times £1.50 = £6 \\
24 \div 8 = 3 \text{ packs of cupcakes required} \\
3 \times £1.95 = £5.85 \\
\text{Total} = 6 + 5.85 = £11.85
\]

6. Denise runs a book shop. She has just had a delivery of 300 new books. She has four empty shelves left to place these books. The shelves are 3.5 metres wide. Each book is 4.5 centimetres wide.

Does Denise have enough space to place the new books?

\[
\text{Shelf space} = 3.5 \times 4 = 14 \text{ m} = 1400 \text{ cm} \\
\text{Books} = 300 \times 4.5 = 1350 \text{ cm}
\]

Yes
7. Edna is making cherry pies. Each pie requires 28 cherries. Cherries are sold in packs of 45. Edna has bought 3 packs. How many cherry pies can Edna make?

\[3 \times 45 = 135\]
\[135 \div 28 = 4.8214\ldots\]

4 pies

8. A wind turbine generates 2,500 kilowatt hours of energy per week. A household uses 55 kilowatt hours of energy per day. A village has 350 households. How many wind turbines would be needed to power the village?

\[\text{Household per week} = 55 \times 7 = 385 \text{ kwh}\]
\[385 \times 350 = 134,750 \text{ kwh}\]
\[134,750 \div 2,500 = 53.9\]

54 wind turbines

9. Harriet’s iPhone has 89 megabytes of storage left. Pictures require 45 kilobytes of storage. 1 megabyte = 1,000 kilobytes

How many pictures can Harriet store on her iPhone?

\[89 \text{ MB} = 89,000 \text{ kB}\]
\[89,000 \div 45 = 1977.7\]

1,977 pictures
10. Karen has saved some 50p coins. The coins have a total value of £136. She is going to cash the coins in at the bank. She will take the coins to the bank in bags. Each bag can hold 35 coins.

How many bags does Karen need to take the coins to the bank?

\[
\text{Number of coins} = \frac{136}{0.5} = 272
\]
\[
272 \div 35 = 7.77... \quad \text{8 bags}
\]

11. Lee is going to play a round of golf. The golf course will close in 2 hours. Each hole takes 9 minutes to play.

How many holes does Lee have time to play?

\[
2 \text{ hours} = 120 \text{ minutes}
\]
\[
120 \div 9 = 13.3 \quad \text{13 holes}
\]

12. Aaron is saving up for a new motorbike. The motorbike costs £3,495. He is going to save 15% of his salary each month. Aaron is paid £26,400 each year.

How many months will it take for Aaron to save enough money to buy the motorbike?

\[
\frac{26400}{12} = £2200 \text{ per month}
\]
\[
15\% \times 2200 = £330 \text{ saved per month}
\]
\[
\frac{3495}{330} = 10.590 \quad \text{11 months}
\]
13.
Gareth has started running a bath.
The bath fills up with water at a rate of 84 millilitres per second.
The bath has a capacity of 75 litres.

Gareth wants to finish watching a movie before his bath.
The movie has 15 minutes left.

Does Gareth have enough time to finish watching the movie before the bath overflows?

\[
\begin{align*}
75 \text{ litres} &= 75,000 \text{ ml} \\
75000 \div 84 &= 892.857\ldots \text{ seconds to fill} \\
\div 60 &= 14.88 \text{ minutes to fill.}
\end{align*}
\]

No, Gareth does not have enough time.

14.
Ralph’s farm has 55,000 m² of land.
Horses require 2 acres of land.

1 acre = 4,047 m²

How many horses can Ralph keep?

\[
\begin{align*}
2 \text{ acres} &= 4047 \times 2 = 8,094 \text{ m}^2 \\
55000 \div 8094 &= 6.795\ldots
\end{align*}
\]

6 horses
15.

Olivia wants to post some parcels at the post office. The prices of posting different-sized parcels are shown in the table below.

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>0-5</th>
<th>5-10</th>
<th>10-20</th>
<th>20-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>80p</td>
<td>£1.50</td>
<td>£2.75</td>
<td>£4.80</td>
</tr>
</tbody>
</table>

Olivia wants to post four parcels, weighing 4 kilograms, 12 kilograms, 15 kilograms and 25 kilograms respectively. Because she works at the post office, Olivia receives a 20% discount.

Work out how much it will cost Olivia to post the parcels.

\[
\begin{align*}
4 \text{ kg} &= £0.80 \\
12 \text{ kg} &= £2.75 \\
15 \text{ kg} &= £2.75 \\
25 \text{ kg} &= £4.80 \\
\text{Total} &= £11.10 \\
20\% \times £11.10 &= £2.22 \\
£11.10 - £2.22 &= £8.88
\end{align*}
\]

16.

A football club is organising a trip to another team’s stadium. The club was allocated 2,500 tickets for the game. 65% of the tickets were sold. The club are going to send their fans in coaches. Each coach has a capacity of 75 people.

How many coaches are required to take the fans to the match?

\[
\begin{align*}
65\% \times 2,500 &= 1,625 \text{ tickets sold} \\
1,625 \div 75 &= 21.6 \\
\text{22 coaches}
\end{align*}
\]
17. Tamsin is serving lemonade at an event. She bought 11 bottles of lemonade. The bottles contain 2.5 litres of lemonade. She serves the lemonade in glasses with a capacity of 450 millilitres. There will be 27 guests at the event.

Does Tamsin have enough lemonade for each guest to have two glasses of lemonade?

\[
\begin{align*}
2.5 \times 11 &= 27.5 \text{ litres} \\
&= 27,500 \text{ ml} \\
27500 \div 450 &= 61.1 \text{ glasses of lemonade} \\
27 \times 2 &= 54 \text{ glasses needed.}
\end{align*}
\]

Yes

18. A male adult panda eats 25 kilograms of bamboo each day. A female adult panda eats 15 kilograms of bamboo each day. A baby panda eats 5 kilograms of bamboo each day. A zoo has 3 male adult pandas, 6 female adult pandas and 2 baby pandas.

1,000 kilograms = 1 tonne.

How many tonnes of bamboo are required each year to feed the pandas at the zoo? There are 365 days in a year. Give your answer to the nearest tonne.

\[
\begin{align*}
\text{Adult males} &= 3 \times 25 \times 365 = 27,375 \text{ kg} \\
\text{Adult females} &= 6 \times 15 \times 365 = 32,850 \text{ kg} \\
\text{Babies} &= 5 \times 2 \times 365 = 3,650 \text{ kg} \\
27,375 + 32,850 + 3,650 &= 63,875 \text{ kg} \\
63,875 \div 1000 &= 63.875 \text{ tonnes}
\end{align*}
\]

64 tonnes
19.
Janice is buying train tickets for her, her husband and her two children.
Adult tickets cost £15.80 and child tickets cost £9.90.
Janice has a family train pass which gives 20% off child tickets and 10% off adult tickets.

Work out how much it will cost for Janice to buy the tickets.

\[
\begin{align*}
2 \text{ adults} &= 15.80 \times 2 = 31.60 \\
31.60 \times 20\% &= 6.32 \\
31.60 - 6.32 &= 25.28 \\
2 \text{ children} &= 9.90 \times 2 = 19.80 \\
19.80 \times 10\% &= 1.98 \\
19.80 - 1.98 &= 17.82 \\
\text{Total cost} &= 25.28 + 17.82 \\
&= 43.10
\end{align*}
\]

20.
Scott owns a farm.
He has 200 chickens.
60% of the chickens are female.
The female chickens lay on average 4 eggs per week.
On average, 5% of eggs laid will not be good enough to sell.

Scott’s goal is to sell 450 eggs each week.
Do you expect Scott to achieve his goal?

\[
\begin{align*}
200 \times 60\% &= 120 \text{ female chickens} \\
120 \times 4 &= 480 \text{ eggs per week} \\
480 \times 5\% &= 24 \\
480 - 24 &= 456 \text{ eggs to sell}
\end{align*}
\]

Yes
21.
Nancy is organising a conference.
She has 12 circular tables to seat the guests.
The tables have a diameter of 3 metres.
Each guest requires 140 centimetres of space around the table.
Nancy is expecting 64 guests.

Does Nancy have enough room for all of the guests?

Circumference = \( \pi \times 300 \) = 942.477... cm
\[
942.477... \div 140 = 6.731... \text{ guests around 1 table}
\]
\[
6 \times 12 = 72 \text{ guests}
\]

Yes

22.
Zoey is painting her living room walls.
The total area of the walls is 115 m².
Each coat of paint requires 75 millilitres per square metre.
Zoey will be applying two coats of paint.
Paint is sold in 5 litre tins for £9.50 each.

How much will it cost Zoey to buy the paint she needs?

\[
15 \times 115 \times 2 = 17,250 \text{ ml of paint needed}
\]
\[
17,250 \div 5 = 3.45 \text{ tins needed}
\]
\[
4 \times £9.50 = £38
\]
23.
Frank runs a toy factory.
The factory is open every day for 10 hours.
The factory makes 3 toys every minute.
21% of the toys made are faulty.
The rest will be sold to shops.

Frank wants to sell 10,000 toys to shops each week.
Will Frank achieve his goal?

\[
10 \times 60 = 600 \text{ minutes} \\
600 \times 3 = 1800 \text{ toys made per day} \\
1800 \times 7 = 12,600 \text{ toys made per week} \\
21\% \times 12600 = 2646 \\
12600 - 2646 = 9,954 \text{ toys to sell} \\
\]

No

24.
Roberta is decorating her Christmas tree with tinsel and baubles.
The number of decorations she needs depends on the height of the tree.

Her Christmas tree is 3.2 metres tall.
She needs 7 baubles for every 40 centimetres of height.
She needs one metre of tinsel for every 20 centimetres of height.
Baubles are sold in packs of 12 for £3.50 per pack.
Tinsel is sold in 10 metre lengths costing £4.60 each.

Work out how much it will cost Roberta to decorate the tree.

\[
320 \div 40 = 8 \\
8 \times 7 = 56 \text{ baubles needed} \\
56 \div 12 = 4.6 \text{ pack of baubles = 5 needed} \\
5 \times £3.50 = £17.50 \\
320 \div 20 = 16 \times 1 = 16 \text{ metres of tinsel needed} \\
16 \div 10 = 1.6 = 2 \text{ lengths needed} \\
2 \times £4.60 = £9.20 \\
£17.50 + £9.20 = £26.70 \\
\]
25.
Brandon is making sandwiches for an event.
He has 24 baguettes, 7 packs of ham and 3 blocks of cheese.

Each pack of ham contains 12 slices.
Each block of cheese weighs 450 grams.

To make a sandwich, Brandon needs:
½ of a baguette
2 slices of ham
35 grams of cheese

How many baguettes can Brandon make with the ingredients he has?

Baguettes: \(24 \div \frac{1}{2} = 48\)

Ham: \(7 \times 12 = 84\) slices
\(84 \div 2 = 42\)

Cheese: \(3 \times 450 = 1,350\) grams
\(1,350 \div 35 = 38.57\ldots\)
\(= 38\)

38 sandwiches
26.
There were four candidates for a local election – Tim Barnes, Brooke Taylor, Alison Marsh and Oliver Lewis.

There were 560,000 registered voters in the election. Only 71% of the registered voters voted in the election.

Of those who voted, 8% voted for Oliver Lewis and 13% voted for Brooke Taylor. Tim Barnes received 159,901 votes.

Who won the election? And by how many votes did they win?

\[
560,000 \times 71\% = 397,600 \text{ people voted}
\]

Oliver Lewis: \(397,600 \times 8\% = 31,808\)

Brooke Taylor: \(397,600 \times 13\% = 51,688\)

Tim Barnes: 159,901

\[
31,808 + 51,688 + 159,901 = 243,397
\]

Alison Marsh: \(397,600 - 243,397 = 154,203\)

\[
159,901 - 154,203 = 5,698
\]

Tim Barnes won by 5,698 votes