



11+ word problems: practice questions

Worked solutions

Foundation

Question 1

A box holds 24 chocolates. Ben eats $\frac{1}{3}$ of them, and then gives 4 chocolates to his sister. How many chocolates are left in the box?

Answer: 12

Step 1 – Ben eats $\frac{1}{3}$ of 24, which is 8 chocolates, leaving $24 - 8 = 16$.

Step 2 – He gives 4 to his sister: $16 - 4 = 12$. So, there are 12 chocolates left.

Question 2

A knight is gathering supplies. He buys 3 torches at £4 each and a coil of rope for £7. He pays the shopkeeper with a £20 note. How much change should the knight receive?

Answer: £1

Step 1 – Cost of the torches: $3 \times £4 = £12$.

Step 2 – Add the rope: $£12 + £7 = £19$.

Step 3 – Change from the note: $£20 - £19 = £1$. So, the knight gets £1 change.

Question 3

Maya's tennis lesson starts at 4:20 in the afternoon and lasts 45 minutes. After the lesson, she spends another 15 minutes practising with a friend. At what time is Maya ready to leave?

Answer: 5:20

Start at 4:20. After the 45-minute lesson: $4:20 + 45 \text{ min} = 5:05$. After 15 minutes practising with the friend: $5:05 + 15 \text{ min} = 5:20$. So, Maya is ready to leave at 5:20.

Question 4

A dragon's vault contains 40 golden goblets. The dragon gives away half of the goblets to a passing wizard, and then carefully polishes 3 of the goblets that are left. How many of the dragon's goblets have NOT yet been polished?

Answer: 17

First, the dragon gives away half, so half remain: $40 \div 2 = 20$ goblets left in the vault.

Then, of those, 3 are polished, so the number not yet polished is $20 - 3 = 17$. The answer is 17 goblets.

Core

Question 5

Two pirates share 56 gold coins in the ratio 3 : 5. How many more coins does the pirate with the larger share receive than the other pirate?

Answer: 14

The ratio 3 : 5 has $3 + 5 = 8$ parts, so each part is $56 \div 8 = 7$ coins. The shares are $3 \times 7 = 21$ and $5 \times 7 = 35$ coins. So, the difference is $35 - 21 = 14$ coins.

Question 6

A recipe needs 250g of sugar. Sam has a 2kg bag of sugar and makes the recipe 3 times. How much sugar is left in the bag? Give your answer in grams.

Answer: 1250g

First convert: $2\text{kg} = 2000\text{g}$.

The recipe is made 3 times, using $3 \times 250\text{g} = 750\text{g}$.

So, the sugar left: $2000\text{g} - 750\text{g} = 1250\text{g}$

Question 7

A farmer harvests 240 pumpkins from his field. He sells $\frac{1}{3}$ of the whole harvest at the market, and gives $\frac{1}{4}$ of the whole harvest to his neighbours. He keeps every pumpkin that is left to make soup. How many pumpkins does the farmer keep for soup?

Answer: 100

Reading the question carefully, we can see that both fractions are taken from the original 240 pumpkins.

Sold: $\frac{1}{3}$ of 240 = 80.

Given away: $\frac{1}{4}$ of 240 = 60.

Kept for soup: $240 - 80 - 60 = 100$. The answer is 100 pumpkins.

Question 8

Leo wants to buy a bicycle that costs £100. He has already saved £30, and he saves a further £6 each week from his pocket money. How many more full weeks must Leo save before he can afford the bicycle?

Answer: 12

Step 1 – Work out how much more Leo needs: $£100 - £30 = £70$.

Step 2 – Divide by his weekly saving: $£70 \div £6 = 11$ remainder 4. So, Leo must save for 12 more weeks.

Challenge

Question 9

A games console is priced at £240. It is reduced by 25% in a sale. A shopper also has a voucher that takes off a further 10% from the sale price. How much does the shopper pay for the console in total?

Answer: £162

Apply the reductions one after the other.

Sale price: 25% of £240 is £60, so $£240 - £60 = £180$.

The voucher then takes 10% off this sale price: 10% of £180 is £18, so $£180 - £18 = £162$. The shopper pays £162.

A key note from carefully reading the question is that the 10% comes off the reduced price, not the original.

Question 10

A merchant begins the day with a chest of silver coins. During the morning he doubles the number of coins he has by selling rare spices. In the afternoon, he spends 70 coins on fresh supplies. By the evening he has exactly 150 coins left. How many coins did the merchant have at the very start of the day?

Answer: 110

We can work backwards, undoing each step in reverse order.

First, we undo the spending by adding it back: $150 + 70 = 220$ coins.

Then, we undo the doubling by halving: $220 \div 2 = 110$. So, he had 110 coins at the start of the day!

To check our answer, we can go forwards: 110 doubled is 220, minus 70 leaves 150. The merchant started with 110 coins.

Question 11

A band of 100 adventurers must cross a wide river to continue their expedition. Each boat can carry exactly 8 people, but 1 of those seats must always be taken by a boatman (who is not one of the adventurers) to row the boat across. What is the smallest number of boats the band needs so that every adventurer gets across?

Answer: 15

Each boat holds 8, but 1 seat is the boatman, so only 7 adventurers can cross per boat. Divide: $100 \div 7 = 14$ remainder 2. So 14 boats carry 98 adventurers, leaving 2 still waiting – one more boat is needed for those 2!

Hence, the smallest number of boats needed is 15.

Question 12

The great dragon Pyraxia returns to her vault after a fierce battle to count what remains of her treasure. During the year she spent $\frac{2}{5}$ of her gold coins repairing the scorched walls of her cave, and later she rewarded her most loyal goblins with 90 gold coins. Counting what is left, she finds exactly 150 gold coins remaining. How many gold coins were in Pyraxia's vault at the very beginning?

Answer: 400

Work backwards, undoing the steps in reverse order. The 90 coins to the goblins were given away last, so we add them back first: $150 + 90 = 240$.

These 240 coins are what was left after Pyraxia spent $\frac{2}{5}$ of her gold, so they must be the other $\frac{3}{5}$ of the original vault.

Find one fifth: $240 \div 3 = 80$.

The whole vault is five fifths: $80 \times 5 = 400$.

We can also check our answer by going forwards again: $\frac{2}{5}$ of 400 is 160 spent, leaving 240; minus 90 for the goblins leaves 150. ✓