



- 1** A shop sells two sizes of box of teabags.

Small box: 80 teabags for £2.40

Large box: 240 teabags for £6.60

Which box is the better value for money? Show your working.

(3 marks)

Compare the cost of the same quantity in each box. Dividing price by the number of teabags gives the cost of one teabag, so the lower unit price is better value

Small box

$$240p \div 80 = 3p \text{ per teabag}$$

Large box

$$660p \div 240 = 2.75p \text{ per teabag}$$

2.75p is less than 3p, so the large box is the better value

- 2** Washing-up liquid is sold in two sizes of bottle.

500 ml bottle for £1.20

750 ml bottle for £1.65

Work out which bottle is the better value for money. You must show your working.

(3 marks)

500 ml bottle

$$120p \div 500 = 0.24p \text{ per ml}$$

750 ml bottle

$$165p \div 750 = 0.22p \text{ per ml}$$

0.22p per ml is cheaper, so the 750 ml bottle is the better value

- 3** Two shops sell the same tins of soup.

Shop A: 3 tins for £2.10

Shop B: 4 tins for £2.72

Decide which shop gives the better value for money. Show your working.

(3 marks)

Shop A

$$£2.10 \div 3 = 70p \text{ per tin}$$

Shop B

$$£2.72 \div 4 = 68p \text{ per tin}$$

68p is less than 70p, so Shop B gives the better value

- 4 Two shops sell the same orange juice.
Shop A sells a 2 litre carton for £1.85.
Shop B sells a 1.5 litre carton for £1.35.
Show which carton is the better value for money.

(4 marks)

Shop A

$$185p \div 2 = 92.5p \text{ per Litre}$$

Shop B

$$135p \div 1.5 = 90p \text{ per Litre}$$

90p per litre is less than 92.5p per litre, so Shop B's carton is the better value

- 5 A games console costs £399 in London.
The same console costs €448.50 in Dublin.
The exchange rate is £1 = €1.15.
In which city is the console cheaper, and by how much? Give your answer in pounds.

(3 marks)

Convert the Dublin price to pounds

$$448.50 \div 1.15 = £390$$

$$\text{London price} = £399$$

$$399 - 390 = £9$$

The console is cheaper in Dublin, by £9

Dublin, by £9

- 6 A supermarket sells two special offer boxes of cereal.
Box A: 500 g for £3.20, with 25% extra free
Box B: 750 g for £3.60, with 10% off the price
Decide which box is the better value for money. You must show your working.

(4 marks)

$$\text{Box A actually contains } 500 \times 1.25 = 625 \text{ g for } £3.20$$

Box A

$$320p \div 625 = 0.512p \text{ per gram}$$

$$\text{Box B actually costs } £3.60 \times 0.9 = £3.24 \text{ for } 750 \text{ g}$$

Box B

$$324p \div 750 = 0.432p \text{ per gram, so Box B is the better value}$$

- 7 Peanut butter is sold in three sizes of jar.

Small: 250 g for £1.10

Medium: 400 g for £1.68

Large: 600 g for £2.58

Work out which jar is the best value for money. You must show your working.

(4 marks)

Small

$$110p \div 250 = 0.44p \text{ per gram}$$

Medium

$$168p \div 400 = 0.42p \text{ per gram}$$

Large

$$258p \div 600 = 0.43p \text{ per gram}$$

The medium jar has the lowest price per gram, so it is the best value

- 8 Layla needs 18 identical notebooks for a club.

Shop A sells the notebooks at £1.20 each, with an offer of buy 2 get 1 free.

Shop B sells the notebooks at £1.05 each, with 10% off the total cost when you buy 15 or more.

Work out which shop is cheaper for 18 notebooks, and by how much.

(4 marks)

Shop A

$$\text{with buy 2 get 1 free, every 3 notebooks cost } 2 \times £1.20 = £2.40$$

$$\begin{aligned} 18 \text{ notebooks} &= 6 \text{ groups} \\ &\text{of 3, so} \\ \text{cost} &= 6 \\ &\times £2.40 \\ &= \\ &£14.40 \end{aligned}$$

Shop B

$$18 \times £1.05 = £18.90, \text{ then } 10\% \text{ off gives } £18.90 \times 0.9 = £17.01$$

$$\text{Shop A is cheaper by } £17.01 - £14.40 = £2.61$$

9

A phone costs £520 in a UK shop.

In a New York shop the same phone costs \$650 plus sales tax at 8%.

The exchange rate is £1 = \$1.35.

Show that the phone costs the same in both shops.

(3 marks)

$$\text{New York price including tax} = 650 \times 1.08 = \$702$$

Convert to pounds

$$702 \div 1.35 = £520$$

This equals the UK price of £520, so the phone costs the same in both shops

10

The same perfume is sold in London and in Paris.

In London it costs £42 for a 50 ml bottle.

In Paris it costs 52.80 euros for a 60 ml bottle.

£1 = 1.20 euros

Work out in which city the perfume is better value for money. You must show your working.

(4 marks)

Change the Paris price to pounds

$$52.80 \div 1.20 = £44$$

London

$$£42 \div 50 = £0.84 \text{ per ml}$$

Paris

$$£44 \div 60 = £0.733... \text{ per ml}$$

The price per ml is lower in Paris, so the perfume is better value in Paris

11

In England, petrol costs £1.44 per litre.

In America, petrol costs 3.80 dollars per US gallon.

1 US gallon = 3.8 litres

£1 = 1.25 dollars

Show that petrol is cheaper in America than in England.

(4 marks)

$$\text{Price per litre in America} = 3.80 \div 3.8 = 1 \text{ dollar per litre}$$

Change to pounds

$$1 \div 1.25 = £0.80 \text{ per litre}$$

£0.80 is less than £1.44, so petrol is cheaper in America

- 12 A teacher needs 48 cartons of juice for a school trip.
Shop A sells packs of 8 cartons for £2.16 per pack.
Shop B sells packs of 6 cartons for £1.68 per pack.
Work out which shop is cheaper for exactly 48 cartons, and by how much.

(4 marks)

Shop A

$$48 \div 8 = 6 \text{ packs, so cost} = 6 \times £2.16 = £12.96$$

Shop B

$$48 \div 6 = 8 \text{ packs, so cost} = 8 \times £1.68 = £13.44$$

$$\text{Shop A is cheaper by } £13.44 - £12.96 = £0.48$$

- 13 In a UK shop, a 750 g bag of rice costs £3.30.
In a shop in France, a 2 kg bag of the same rice costs €9.60.
The exchange rate is £1 = €1.20
Which shop sells the rice at the better value? You must show your working.

(4 marks)

Find the price per kg in each shop

$$\text{UK: } 3.30 \div 0.75 = £4.40 \text{ per kg}$$

$$\text{France: } 9.60 \div 2 = €4.80 \text{ per kg}$$

Change euros to pounds

$$4.80 \div 1.20 = £4.00 \text{ per kg}$$

The French shop is better value

- 14 Sam is organising a barbecue and needs at least 30 bread rolls.
Bread rolls are sold in packs of 6 for £1.10 and packs of 15 for £2.55.
Work out the cheapest way for Sam to buy at least 30 rolls, and the cost.

(5 marks)

Two packs of 15 gives exactly 30 rolls

$$2 \times £2.55 = £5.10$$

Five packs of 6 gives exactly 30 rolls

$$5 \times £1.10 = £5.50$$

One pack of 15 and three packs of 6 gives 33 rolls

$$£2.55 + 3 \times £1.10 = £5.85$$

The cheapest way is two packs of 15, costing £5.10

Two packs of 15 for £5.10

15

Mia needs at least 40 paper cups and at least 40 paper plates for a party.

Cups: pack of 25 for £1.80, or pack of 10 for £0.85

Plates: pack of 20 for £2.40, or pack of 8 for £1.10

Work out the cheapest total cost for Mia. You must show your working.

(5 marks)

Cups

four packs of 10 gives exactly 40 cups for $4 \times £0.85 = £3.40$

Compare: two packs of 25 gives 50 cups for £3.60, and $25 + 10 + 10$ gives 45 cups for £3.50, so £3.40 is cheapest

Plates

two packs of 20 gives exactly 40 plates for $2 \times £2.40 = £4.80$

Compare: five packs of 8 gives 40 plates for £5.50, and $20 + 8 + 8 + 8$ gives 44 plates for £5.70, so £4.80 is cheapest

Cheapest total = $£3.40 + £4.80 = £8.20$

£8.20

16

A shop sells rice in two sizes of bag.

Small bag: 500 g for £1.35

Large bag: 2 kg for £4.80

Meena needs exactly 6 kg of rice.

Work out the cheapest way for Meena to buy exactly 6 kg of rice. You must show that your way is the cheapest.

(5 marks)

Small bags

500 g each, so 6 kg needs 12 small bags, costing $12 \times £1.35 = £16.20$

Large bags

2 kg each, so 6 kg needs 3 large bags, costing $3 \times £4.80 = £14.40$

Cost per kg: small bag £2.70 per kg, large bag £2.40 per kg, so replacing any large bag with small bags always costs more

The cheapest way is 3 large bags, costing £14.40

3 large bags for £14.40