

EXCHANGE RATES & RATIOS

Mastery Worksheet & Applied Problems

I DO

Carlos changes £600 into Euros (€).

The exchange rate is $\text{£}1 = \text{€}1.15$.

Carlos divides his Euros into money to spend and money to save in the ratio 3 : 2.

He changes the money to save back into Pounds (£).

The new exchange rate is $\text{£}1 = \text{€}1.18$.

Work out how many Pounds (£) Carlos receives.

Give your answer to the nearest penny.

WE DO

Emma changes £800 into US Dollars (\$).

The exchange rate is $\text{£}1 = \$1.20$.

Emma divides her Dollars into money to spend and money to save in the ratio 5 : 3.

She changes the money to save back into Pounds (£).

The new exchange rate is $\text{£}1 = \$1.25$.

Work out how many Pounds (£) Emma receives.

Give your answer to the nearest penny.

YOU DO 1

Mark changes £500 into Australian Dollars (AUD).

The exchange rate is £1 = \$1.80 AUD.

Mark divides his Australian Dollars into money to spend and money to save in the ratio 1 : 4.

He changes the money to save back into Pounds (£).

The new exchange rate is £1 = \$1.75 AUD.

Work out how many Pounds (£) Mark receives.

Give your answer to the nearest penny.

YOU DO 2

Katie changes £1200 into Japanese Yen (¥).

The exchange rate is £1 = ¥160.

Katie divides her Yen into money to spend and money to save in the ratio 7 : 3.

She changes the money to save back into Pounds (£).

The new exchange rate is £1 = ¥165.

Work out how many Pounds (£) Katie receives.

Give your answer to the nearest penny.

CHALLENGE

Paul changes £1500 into Swiss Francs (CHF).

The exchange rate is £1 = CHF 1.12.

He spends CHF 400 on accommodation.

He divides the remaining Francs into money to save and money to invest in the ratio 2 : 3.

He changes the money to invest back into Pounds (£).

The new exchange rate is £1 = CHF 1.15.

Work out how many Pounds (£) Paul receives.

Give your answer to the nearest penny.

ADDITIONAL APPLIED PROBLEMS**1) Percentage Change**

Sophie changes £800 into US Dollars (\$).

The exchange rate is $\text{£}1 = \$1.20$.

She invests the dollars and the investment grows to \$1200.

She changes the \$1200 back into Pounds (£).

The new exchange rate is $\text{£}1 = \$1.25$.

Work out her overall percentage profit in Pounds.

2) Reverse Percentage

Rob buys a laptop in France for €612.

This price is after a 15% reduction in a sale.

The exchange rate is $\text{£}1 = \text{€}1.20$.

Work out the original price of the laptop before the sale, in Pounds (£).

3) Repeated Percentage Change

Zoe changes £2000 into Australian Dollars (AUD).

The exchange rate is $\text{£}1 = \$1.80 \text{ AUD}$.

She puts the money into a savings account that pays 5% compound interest per year.

After 2 years, she changes the total amount in the account back into Pounds (£).

The new exchange rate is $\text{£}1 = \$1.75 \text{ AUD}$.

Work out how many Pounds (£) Zoe receives.

4) Mass Conversion & Exchange Rates

John buys 5 kg of coffee in the UK for £66.

Catherine buys 11 lbs of the same coffee in the USA for \$88.

Use the conversion $1 \text{ kg} = 2.2 \text{ lbs}$.

The exchange rate is $\text{£}1 = \$1.25$.

Work out the price per kilogram in Pounds (£) for both John and Catherine to determine who got the better value.

ANSWERS & WORKED SOLUTIONS

I Do

Step 1: $£600 \times 1.15 = €690$.

Step 2: Ratio 3:2 is 5 parts. $€690 \div 5 = €138$.

Step 3: Save = 2 parts = $€276$.

Step 4: $€276 \div 1.18 = 233.898...$

Answer: £233.90

We Do

Step 1: $£800 \times 1.20 = \$960$.

Step 2: Ratio 5:3 is 8 parts. $\$960 \div 8 = \120 .

Step 3: Save = 3 parts = $\$360$.

Step 4: $\$360 \div 1.25 = 288$.

Answer: £288.00

You Do 1

Step 1: $£500 \times 1.80 = \$900$ AUD.

Step 2: Ratio 1:4 is 5 parts. $\$900 \div 5 = \180 AUD.

Step 3: Save = 4 parts = $\$720$ AUD.

Step 4: $\$720 \div 1.75 = 411.428...$

Answer: £411.43

You Do 2

Step 1: $£1200 \times 160 = ¥192000$.

Step 2: Ratio 7:3 is 10 parts. $¥192000 \div 10 = ¥19200$.

Step 3: Save = 3 parts = $¥57600$.

Step 4: $¥57600 \div 165 = 349.090...$

Answer: £349.09

Challenge

Step 1: $£1500 \times 1.12 = \text{CHF } 1680$.

Step 2: Remainder = $1680 - 400 = \text{CHF } 1280$.

Step 3: Ratio 2:3 is 5 parts. $1280 \div 5 = \text{CHF } 256$.

Step 4: Invest = 3 parts = $\text{CHF } 768$.

Step 5: $\text{CHF } 768 \div 1.15 = 667.826...$

Answer: £667.83

1) Percentage Change

Step 1: $£800 \times 1.20 = \$960$.

Step 2: $\$1200 \div 1.25 = £960$.

Step 3: Profit = $£960 - £800 = £160$.

Step 4: % Profit = $(160 \div 800) \times 100 = 20$.

Answer: 20%

2) Reverse Percentage

Step 1: $85\% = €612$.

Step 2: Original price in Euros = $612 \div 0.85 = €720$.

Step 3: Original price in Pounds = $720 \div 1.20 = 600$.

Answer: £600

3) Repeated Percentage Change

Step 1: $£2000 \times 1.80 = \$3600$ AUD.

Step 2: Interest = $\$3600 \times 1.05^2 = \3969 AUD.

Step 3: Convert to Pounds = $3969 \div 1.75 = 2268$.

Answer: £2268

4) Mass Conversion & Exchange Rates

Step 1: John per kg = $66 \div 5 = £13.20$ per kg.

Step 2: Catherine weight in kg = $11 \div 2.2 = 5$ kg.

Step 3: Catherine cost in Pounds = $88 \div 1.25 = £70.40$.

Step 4: Catherine per kg = $70.40 \div 5 = £14.08$ per kg.

Answer: John got the better value (£13.20 vs £14.08).