

# Currency conversions: IGCSE Maths worksheet with answers

This worksheet covers money conversions for Cambridge IGCSE Mathematics (0580), Extended tier. It starts with short method notes, then gives 20 exam-style questions that get harder as you go, ending with multi-step problems that combine currency with percentages, ratio, standard form and bounds. Full worked answers are at the end.

All exchange rates in this worksheet are made up for practice. Real rates change every day, so always use the rate printed in the question.

## What you need to know

### 1. Reading an exchange rate

An exchange rate tells you how much of one currency you get for one unit of another. "£1 = 1.15 euros" means every pound changes into 1.15 euros. The same rate can be written the other way round: 1 euro =  $\pounds(1 \div 1.15) = \pounds0.8696$  (to 4 decimal places).

#### Rule: converting both ways

If 1 unit of currency A =  $r$  units of currency B, then:

A to B: **multiply** by  $r$ .

B to A: **divide** by  $r$ .

Check: you should get **more** units of the currency with the smaller value per unit.

A quick sense check stops most errors. If £1 = 1.15 euros, then euros are worth less than pounds, so any amount in pounds turns into a bigger number of euros. If your answer goes the wrong way, you multiplied when you should have divided, or the reverse.

#### Worked example 1: converting both ways

The exchange rate is \$1 = 280 Pakistani rupees (PKR).

(a) Change \$35 to rupees.  $35 \times 280 = \text{PKR } 9,800$ .

(b) Change PKR 42,000 to dollars.  $42,000 \div 280 = \$150$ .

Check: rupees have a smaller value per unit, so the rupee amounts are the bigger numbers. Correct.

### 2. Rounding money

Most currencies have 100 smaller units (100 cents in a dollar or euro, 100 pence in a pound), so give answers to 2 decimal places unless told otherwise. Some currencies, such as the Japanese yen, are normally given as whole numbers. Keep full calculator values in the middle of a long calculation and round only at the end.

### 3. Commission and fees

Banks and exchange bureaus make money by charging **commission** (a percentage of the amount changed) or a **fixed fee**, or by offering a worse rate. Read carefully to see which currency the charge



is taken from and whether it is taken before or after converting.

#### Rule: commission

A commission of  $p\%$  taken from the amount changed leaves  $(100 - p)\%$  of it to convert.

Amount converted = original amount  $\times (100 - p)/100$ .

A fixed fee is simply subtracted first: amount converted = original amount - fee.

#### Worked example 2: commission

Bilal changes £400 into euros at £1 = 1.15 euros. The bureau charges 2.5% commission on the pounds changed. How many euros does he get?

Commission:  $2.5\%$  of 400 =  $0.025 \times 400 = £10$ .

Pounds converted:  $400 - 10 = £390$  (or  $400 \times 0.975 = £390$ ).

Euros:  $390 \times 1.15 = 448.50$  euros.

### 4. Comparing prices in different currencies

To compare prices, change them all into **one** currency, usually the one the question asks about, then compare. State clearly which is cheaper and by how much, in the currency asked for.

#### Worked example 3: comparing prices

A pair of trainers costs \$96 in New York and £79 in London. The rate is £1 = \$1.25. Where are they cheaper, and by how much in pounds?

Change the dollar price to pounds:  $96 \div 1.25 = £76.80$ .

London price: £79.00.

New York is cheaper by  $79.00 - 76.80 = £2.20$ .

### 5. Changing through a third currency (cross rates)

If you know A to B and B to C, you can go A to B to C in two steps. Multiplying the two rates gives the direct A to C rate.

#### Exam tip

Write the rate at the top of your working with units, for example "£1 = 1.15 €", and label every line (£ or €). Most lost marks come from mixing up which way to convert, not from the arithmetic.

## Questions

Show your working. Give money answers to 2 decimal places unless the question says otherwise.

### Section A: one-step conversions

1. The exchange rate is £1 = 1.16 euros. Change £250 into euros.
2. The exchange rate is \$1 = 280 Pakistani rupees (PKR). Change \$45 into rupees.
3. The exchange rate is 1 euro = \$1.08. Change \$540 into euros.
4. The exchange rate is £1 = \$1.27. Sana has \$381. Change this into pounds.
5. The exchange rate is \$1 = 3.67 UAE dirhams (AED). Change AED 5,000 into dollars, giving your answer to the nearest cent.

6. The exchange rate is 1 euro = £0.86. Write this as an exchange rate in the form £1 = k euros, giving k correct to 3 significant figures.

### Section B: two-way and comparing

7. At a bank, \$50 can be exchanged for £41.  
(a) Change \$120 into pounds.  
(b) Change £205 into dollars.
8. A watch costs £180 in London. The same watch costs 210 euros in Paris. The exchange rate is £1 = 1.15 euros. In which city is the watch cheaper, and by how much in pounds?
9. A phone is on sale in three countries: \$899 in the USA, £720 in the UK and AED 3,300 in Dubai. The exchange rates are £1 = \$1.25 and £1 = AED 4.60.  
(a) Change each price into pounds.  
(b) Find the difference in pounds between the most expensive and the cheapest price.
10. The exchange rate is £1 = \$1.25 and \$1 = 150 Japanese yen.  
(a) Change £80 into yen.  
(b) Find the value of 1 yen in pounds, correct to 3 significant figures.

### Section C: commission and fees

11. An exchange bureau charges 2% commission on the pounds changed. Usman changes £500 into euros at £1 = 1.18 euros. How many euros does he receive?
12. A bank charges a fixed fee of £3 for each exchange, taken from the pounds before converting. Ali changes £400 into dollars at £1 = \$1.25. How many dollars does he receive?
13. Before a holiday, Sara changes £600 into euros at £1 = 1.12 euros. She spends 500 euros. When she gets home, the bureau buys her remaining euros back at £1 = 1.20 euros. How many pounds does she get back?
14. Hamza needs exactly 1,182 euros. The exchange rate is £1 = 1.20 euros, and the bureau first takes 1.5% commission from the pounds he hands over. How many pounds must he hand over?

### Section D: multi-step problems

15. The exchange rate changes from £1 = 1.10 euros to £1 = 1.21 euros.  
(a) Calculate the percentage increase in the number of euros per pound.  
(b) Maya changes £800 into euros after the change. How many more euros does she get than she would have got before the change?
16. Three friends share a hotel bill of 1,260 euros in the ratio 2 : 3 : 4. Ahmed pays the largest share. He pays using pounds at £1 = 1.12 euros. How much does Ahmed pay in pounds?
17. A country's exports in one year are worth  $\$4.2 \times 10^9$ . The exchange rate is \$1 = 280 Pakistani rupees. Write the value of the exports in rupees in standard form.
18. The exchange rate is \$1 = 278.6 Pakistani rupees, correct to 1 decimal place.  
(a) Write down the lower bound of the exchange rate.  
(b) Calculate the least number of rupees that \$500 could be worth.  
(c) Calculate the greatest number of rupees that \$500 could be worth.
19. A trader buys 200 handbags in Italy for 45 euros each. She also pays 600 euros to ship them. She sells all of them in Pakistan for PKR 18,000 each. The exchange rate is 1 euro = PKR 300.  
(a) Calculate her total cost in rupees.

(b) Calculate her percentage profit.

20. Zara has \$2,000. She changes it into euros at \$1 = 0.92 euros. The bank first takes 1% commission from her dollars. On holiday she spends 40% of her euros. She then changes the rest back into dollars at 1 euro = \$1.05 with no commission.

(a) How many euros does she receive?

(b) How many dollars does she get back at the end, to the nearest cent?

(c) Without commission and with no change in rate, 60% of her money would be \$1,200. Explain why she gets back less than this.

## Answers

1. Pounds to euros, so multiply.  $250 \times 1.16 = \mathbf{290 \text{ euros}}$ .

2. Dollars to rupees, so multiply.  $45 \times 280 = \mathbf{PKR 12,600}$ .

3. Rate is 1 euro = \$1.08. Dollars to euros, so divide.  $540 \div 1.08 = \mathbf{500 \text{ euros}}$ .

Check: a euro is worth more than a dollar here, so the euro amount should be smaller. Correct.

4. Dollars to pounds, so divide.  $381 \div 1.27 = \mathbf{£300}$ .

5. Dirhams to dollars, so divide.  $5,000 \div 3.67 = 1,362.3978... = \mathbf{\$1,362.40}$  to the nearest cent.

6. 1 euro = £0.86, so  $£1 = 1 \div 0.86 \text{ euros} = 1.1627... = \mathbf{1.16 \text{ euros}}$  (3 s.f.). So  $k = 1.16$ .

7. \$50 = £41, so  $£1 = 41 \div 50 = £0.82$ .

(a)  $120 \times 0.82 = \mathbf{£98.40}$ .

(b)  $205 \div 0.82 = \mathbf{\$250}$ .

(Alternative for (b):  $£41 = \$50$ , and  $205 \div 41 = 5$ , so  $5 \times 50 = \$250$ .)

8. Change the Paris price to pounds:  $210 \div 1.15 = 182.6086... = \mathbf{£182.61}$ .

London price: £180.00.

**London is cheaper by**  $182.61 - 180.00 = \mathbf{£2.61}$ .

9. (a) USA:  $899 \div 1.25 = \mathbf{£719.20}$ .

UK:  $\mathbf{£720.00}$ .

Dubai:  $3,300 \div 4.60 = 717.3913... = \mathbf{£717.39}$ .

(b) Most expensive is the UK (£720.00), cheapest is Dubai (£717.39).

Difference:  $720.00 - 717.39 = \mathbf{£2.61}$ .

10. (a) £80 to dollars:  $80 \times 1.25 = \$100$ . Dollars to yen:  $100 \times 150 = \mathbf{15,000 \text{ yen}}$ .

(b) Direct rate:  $£1 = 1.25 \times 150 = 187.5 \text{ yen}$ . So 1 yen =  $£(1 \div 187.5) = \mathbf{£0.00533}$  (3 s.f.).

11. Commission: 2% of £500 =  $0.02 \times 500 = \mathbf{£10}$ .

Pounds converted:  $500 - 10 = \mathbf{£490}$ .

Euros:  $490 \times 1.18 = \mathbf{578.20 \text{ euros}}$ .

12. Pounds converted after the fee:  $400 - 3 = \text{£}397$ .

Dollars:  $397 \times 1.25 = \text{\$}496.25$ .

13. Euros received:  $600 \times 1.12 = 672$  euros.

Euros left after spending:  $672 - 500 = 172$  euros.

Changing back (euros to pounds, so divide):  $172 \div 1.20 = 143.333... = \text{£}143.33$ .

Note the bureau sells at 1.12 but buys back at 1.20, so she gets fewer pounds back than if one rate had been used both ways.

14. Work backwards.

Pounds actually converted:  $1,182 \div 1.20 = \text{£}985$ .

After 1.5% commission, 98.5% of the amount handed over is converted, so  $0.985 \times (\text{amount}) = 985$ .

Amount handed over =  $985 \div 0.985 = \text{£}1,000$ .

Check: 1.5% of 1,000 = £15;  $1,000 - 15 = 985$ ;  $985 \times 1.20 = 1,182$  euros. Correct.

15. (a) Increase:  $1.21 - 1.10 = 0.11$  euros per pound.

Percentage increase =  $(0.11 \div 1.10) \times 100 = 10\%$ .

(b) After the change:  $800 \times 1.21 = 968$  euros. Before:  $800 \times 1.10 = 880$  euros.

Difference:  $968 - 880 = 88$  euros more. (Or  $800 \times 0.11 = 88$ .)

16. Total parts:  $2 + 3 + 4 = 9$ . One part:  $1,260 \div 9 = 140$  euros.

Largest share:  $4 \times 140 = 560$  euros.

In pounds (euros to pounds, so divide):  $560 \div 1.12 = \text{£}500$ .

17.  $4.2 \times 10^9 \times 280 = (4.2 \times 280) \times 10^9 = 1,176 \times 10^9$ .

$1,176 = 1.176 \times 10^3$ , so the value is  $1.176 \times 10^3 \times 10^9 = \text{PKR } 1.176 \times 10^{12}$ .

18. Correct to 1 decimal place means the true value is within 0.05 of 278.6.

(a) Lower bound:  $278.6 - 0.05 = 278.55$  rupees per dollar.

(b) Least value:  $500 \times 278.55 = \text{PKR } 139,275$ .

(c) Upper bound of the rate:  $278.6 + 0.05 = 278.65$ . Greatest value:  $500 \times 278.65 = \text{PKR } 139,325$ .

19. (a) Cost of the bags:  $200 \times 45 = 9,000$  euros.

Total cost in euros:  $9,000 + 600 = 9,600$  euros.

In rupees:  $9,600 \times 300 = \text{PKR } 2,880,000$ .

(b) Income:  $200 \times 18,000 = \text{PKR } 3,600,000$ .

Profit:  $3,600,000 - 2,880,000 = \text{PKR } 720,000$ .

Percentage profit =  $(\text{profit} \div \text{cost}) \times 100 = (720,000 \div 2,880,000) \times 100 = 25\%$ .

20. (a) Commission: 1% of \$2,000 = \$20. Dollars converted:  $2,000 - 20 = \$1,980$ .

Euros:  $1,980 \times 0.92 = 1,821.60$  euros.

(b) Euros spent: 40% of 1,821.60 =  $0.4 \times 1,821.60 = 728.64$  euros.

Euros left:  $1,821.60 - 728.64 = 1,092.96$  euros (or  $0.6 \times 1,821.60$ ).

Back to dollars:  $1,092.96 \times 1.05 = 1,147.608 = \text{\$}1,147.61$ .

(c) She gets back  $\$1,200.00 - \$1,147.61 = \$52.39$  less than 60% of her original money. One reason is the 1% commission taken at the start. The main reason is the rates: \$1 bought 0.92 euros, which means 1 euro was worth  $1 \div 0.92 = \$1.087$  (to 3 d.p.) when she bought, but the bank paid only \$1.05 per euro when she sold. Selling at a lower rate than she bought at loses money.