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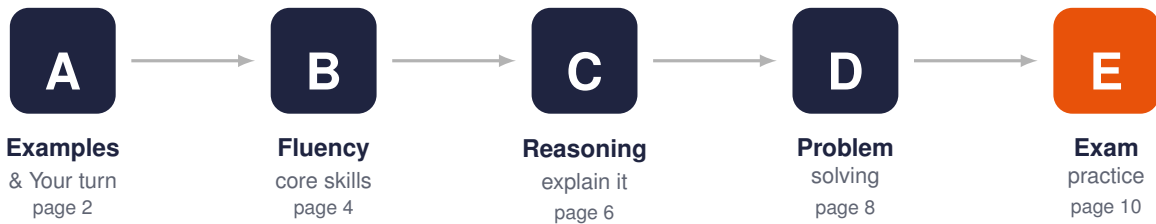
GCSE MATHEMATICS • RATIO & PROPORTION

Exchange Rates

Worksheet

Pearson Edexcel GCSE (1MA1) & International GCSE (4MA1) • Calculator allowed

Free Exchange Rates worksheet for GCSE and iGCSE Maths, with full worked solutions



Tap a section to jump straight to it

By the end of this worksheet you can: convert between currencies in both directions • use conversion graphs • compare prices in different countries • *Higher:* work with commission and fees, changes in the rate, buying and selling rates, and equations.

Which questions are for me?

FOUNDATION Everyone starts here. These skills appear on both tiers.

HIGHER The same skills where Higher papers use them: commission, changing rates, buying and selling back, and forming equations. Grades 6 to 9.

Every section has both, clearly labelled. Questions get harder as you go, and every skill in Sections A to D is needed in Section E.

Track your progress

Section	B	C	D	E
Foundation marks	22	10	13	19
Higher marks	16	13	17	15
My score				

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A**Worked examples & Your turn**

Read each example carefully. Cover it up, then answer the question beside it using the same method.

FOUNDATION*Everyone starts here***Worked example A1**

The exchange rate is £1 = €1.16

Change £250 into euros.

£1 gives €1.16, so pounds to euros means multiply.

$$250 \times 1.16 = 290$$

€290

Your turn A1

The exchange rate is £1 = \$1.27

Change £320 into dollars.

Worked example A2

The exchange rate is £1 = €1.24

Change €434 into pounds.

Going back towards the £1 means divide.

$$434 \div 1.24 = 350$$

£350

Your turn A2

The exchange rate is £1 = \$1.35

Change \$513 into pounds.

Worked example A3

Trainers cost £68 in the UK and €80 in Spain.

£1 = €1.15

Where are they cheaper?

Change to the same currency, then compare.

$$80 \div 1.15 = 69.56\dots, \text{ so } €80 \text{ is about } £69.57$$

the UK

Your turn A3

A jacket costs £120 in the UK and \$150 in the USA. £1 = \$1.28

Where is it cheaper?



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HIGHER*Higher strategies: these are new ways of thinking, not longer sums***Worked example A4: commission comes off first**

A bureau takes 3% commission from the pounds and changes the rest at £1 = €1.20. How many euros do you get for £400?

97% of the pounds is changed.

$$400 \times 0.97 = 388 \quad 388 \times 1.2 = 465.6$$

€465.60

Your turn A4

A bureau takes 2% commission from the pounds, then changes the rest at £1 = \$1.30

How many dollars do you get for £750?

Worked example A5: when the rate changes

£1 = €1.25, then the pound falls in value by 4%. How many fewer euros do you get for £500?

$$\text{New rate} = 1.25 \times 0.96 = 1.2$$

$$500 \times 1.25 = 625 \quad 500 \times 1.2 = 600$$

€25 fewer

Your turn A5

The rate is £1 = \$1.30. The pound then rises in value by 5%

How many more dollars do you get for £800?

Worked example A6: buying and selling back

A bureau sells euros at £1 = €1.20 and buys them back at £1 = €1.25. You change £300 into euros and straight back. What percentage do you lose?

$$300 \times 1.2 = 360 \quad 360 \div 1.25 = 288$$

$$\text{Loss: } \frac{12}{300} \times 100 = 4$$

4%

Your turn A6

A bureau sells dollars at £1 = \$1.30 and buys them back at £1 = \$1.40

You change £700 into dollars and then straight back. What percentage do you lose?

Worked example A7: undoing commission

After 4% commission is taken from the pounds and the rest is changed at £1 = €1.25, Tom gets €600. How many pounds did he start with?

Undo each step in reverse order.

$$600 \div 1.25 = 480 \quad 480 \div 0.96 = 500$$

£500

Your turn A7

After 3% commission is taken from the pounds, and the rest is changed at £1 = \$1.30, Ana gets \$1134.90

How many pounds did she start with?



B**Fluency**

Each question is a designed sequence. From one part to the next, ask yourself: what changed, and what did it do to the answer?

FOUNDATION

Everyone starts here

B1 The exchange rate is $\text{£}1 = \text{€}1.16$ Change

- (a) £80 into euros (b) €92.80 into pounds (c) €100 into pounds (d) €1 into pounds

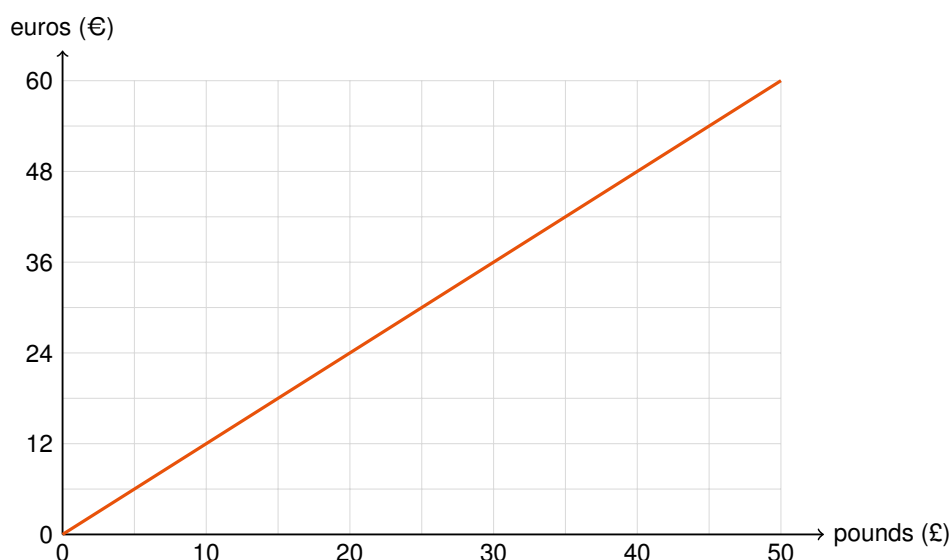
[4 marks]

B2 Change each amount using the rate given.

- (a) £45 into dollars, when $\text{£}1 = \$1.28$ (b) \$45 into pounds, when $\$1 = \text{£}0.78$
 (c) £12.50 into yen, when $\text{£}1 = \text{¥}190$ (d) ¥7500 into pounds, when $\text{¥}1000 = \text{£}5.20$

[4 marks]

B3 The graph can be used to change between pounds and euros.



- (a) Change £30 into euros. (b) Change €54 into pounds.
 (c) Change £250 into euros. (d) Change €84 into pounds.

[4 marks]

B4 $\text{£}1 = \text{€}1.15$ and $\text{£}1 = \$1.28$ Which price is lower? Show your working.

- (a) £40 or €45 (b) £40 or \$52 (c) €50 or \$55

[3 marks]



FOUNDATION*continued: commission and prices***B5** £1 = €1.15

- (a) A bureau takes 2% commission. How much commission is paid on £300?
- (b) How many euros do you get for £300 after the 2% commission?
- (c) Another bureau takes a fee of £3 instead. How many euros do you get for £300?
- (d) A third bureau takes 1.5% commission. How many euros do you get for £400?

[4 marks]**B6** £1 = €1.15. Petrol in France costs €1.84 per litre.

- (a) Work out the cost of 40 litres in euros. (b) Work out the cost of 40 litres in pounds.
- (c) Petrol in the UK costs £1.52 per litre. Where is petrol cheaper?

[3 marks]**HIGHER***Higher tier only***B7** (a) £1 = €1.20. The pound rises in value by 5%. Write down the new rate.

(b) £1 = €1.20. The pound falls in value by 5%. Write down the new rate.

(c) The rate changes from £1 = \$1.40 to £1 = \$1.33. Work out the percentage change in the value of the pound.

(d) The rate changes from €1 = £0.80 to €1 = £0.84. Work out the percentage change in the value of the pound.

[4 marks]**B8** You change £100 into euros at £1 = €1.20 and then change all the euros back. How many pounds do you get back if the rate for changing back is

- (a) £1 = €1.20 (b) £1 = €1.25 (c) £1 = €1.30 (d) £1 = €1.25, if you start with £500?

[4 marks]**B9** Work out how many pounds were changed.

(a) €345 was received at £1 = €1.15

(b) €345 was received at £1 = €1.15, after 2% commission was taken from the pounds

(c) €345 was received at £1 = €1.15, after a fee of £5 was taken from the pounds

(d) \$520 was received at £1 = \$1.30, after 4% commission was taken from the pounds

[4 marks]**B10** £1 = €1.15 and £1 = \$1.30. Give (a), (b) and (c) to 2 decimal places.

- (a) €1 in pounds (b) €1 in dollars (c) \$1 in euros (d) €230 in dollars

[4 marks]

C**Reasoning**

Show your working and explain your thinking. A correct answer without a reason does not score full marks.

FOUNDATION

Everyone starts here

- C1** The exchange rate is $\text{£}1 = \text{€}1.16$. Ali changes $\text{€}290$ into pounds. He writes $290 \times 1.16 = 336.40$, so $\text{£}336.40$
(a) Explain Ali's mistake. (b) Work out the correct amount. [2 marks]
- C2** Is an exchange rate of $\text{£}1 = \$1.25$ the same as $\$1 = \text{£}0.80$? You must show your working. [2 marks]
- C3** (a) Explain why a graph for changing pounds into euros passes through $(0, 0)$
(b) A bureau charges a fee of $\text{£}4$ every time it changes money. Explain why the number of euros you get is **not** directly proportional to the number of pounds you change. [3 marks]
- C4** Tim has $\text{€}100$ and $\$100$. $\text{£}1 = \text{€}1.16$ and $\text{£}1 = \$1.30$
Show that together his money is worth less than $\text{£}165$ [3 marks]



HIGHER*Higher tier only*

- C5** £1 = €1.20. A hotel costs €500
Kai says, "If the pound rises by 10% against the euro, the hotel will cost 10% less in pounds."
Is Kai correct? You must show your working. [3 marks]
- C6** Lucy changed some pounds into euros. 5% commission was taken from the pounds and the rest was changed at £1 = €1.15. She got €575
She works out $575 \div 1.15 = 500$ $500 \times 1.05 = 525$, so she changed £525
(a) Explain Lucy's mistake. (b) Work out the correct amount. [3 marks]
- C7** Bureau A changes pounds at £1 = €1.18 but takes 1.5% commission from the pounds.
Bureau B changes pounds at £1 = €1.16 and takes no commission.
Which bureau gives more euros? You must show your working. [3 marks]
- C8** A bureau sells euros at £1 = € s and buys them back at £1 = € b , where $b > s$
(a) Show that if you change £ P into euros and straight back, you lose £ $P \left(1 - \frac{s}{b}\right)$
(b) Explain why the percentage you lose does not depend on P
(c) When $s = 1.2$ you lose 4%. Find b [4 marks]



D**Problem solving**

You decide the method. Read the whole question first, and show every step.

FOUNDATION

Everyone starts here

- D1** Sara has £600 for a holiday in Italy. Her hotel costs €85 per night for 4 nights.
£1 = €1.14. How much money, in pounds, does Sara have left after paying for the hotel? **[3 marks]**
- D2** The same bike is sold in three countries.
UK: £850 Germany: €960 plus €40 delivery USA: \$1150 with free delivery
£1 = €1.16 and £1 = \$1.29. In which country is the bike cheapest? You must show your working. **[4 marks]**
- D3** Eve drives 600 km in France. Her car uses 6.5 litres of fuel for every 100 km.
Fuel costs €1.84 per litre. £1 = €1.15. Work out the cost of the fuel in pounds. **[3 marks]**
- D4** Kevin wants to change up to £280 into yen. The bank only has ¥1000 notes. £1 = ¥185
He wants as many notes as possible. How many notes does he get, and how much does he pay in pounds? **[3 marks]**



HIGHER*Higher tier only*

- D5** A bureau takes 2.5% commission, but always at least £5. The rate is £1 = €1.16
- (a) Ella changes £150. How many euros does she get?
- (b) What is the smallest whole number of pounds that Ella could change and pay more than £5 commission? [4 marks]
- D6** A shop buys 40 watches in the USA for \$85 each. It sells them all in the UK for £79 each. £1 = \$1.25. Work out the shop's percentage profit. [4 marks]
- D7** Amy needs €1200 for a trip. She has £1000. Today £1 = €1.14
- She expects the value of the pound to rise by 2% each month, compared with the previous month.
- After how many months will her £1000 first buy at least €1200? [4 marks]
- D8** Ana changes £ x into euros at £1 = €1.15
- Ben changes £($x + 200$) into dollars at £1 = \$1.30
- Ben gets 440 more dollars than Ana gets euros.
- How many pounds does Ana change? [5 marks]



**Exam practice**

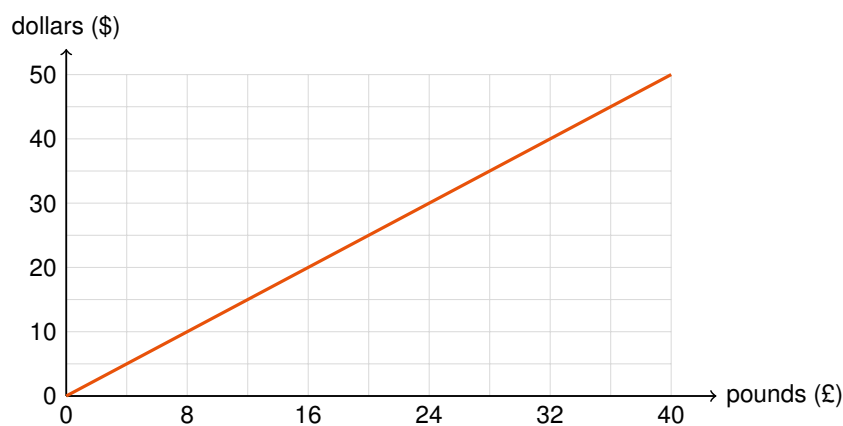
Exam-style questions. Write your answers in the spaces. Aim for about one minute per mark.

FOUNDATION*Foundation and Higher crossover***E1** The exchange rate is £1 = €1.16**(a)** Change £350 into euros.

€

(2)**(b)** Change €261 into pounds.

£

(2)**(Total for Question E1 is 4 marks)****E2** The graph can be used to change between pounds and US dollars.**(a)** Use the graph to change £24 into dollars.

\$

(1)**(b)** Change \$450 into pounds.

£

(2)**(Total for Question E2 is 3 marks)****Join students already acing their exams.**Book your FREE lesson at www.eclassroom.org.uk

- E3** Headphones cost £85 in the UK. The same headphones cost €96 in France.

$$£1 = €1.14$$

Where are the headphones cheaper, and by how much in pounds?

.....

(Total for Question E3 is 3 marks)

- E4** Lee changes £500 into euros. The bureau takes 2% commission from the pounds, then changes the rest at $£1 = €1.15$

How many euros does Lee get?

€

(Total for Question E4 is 3 marks)

- E5** Mia changes £800 into dollars at $£1 = \$1.30$. On holiday she spends \$760

She changes the dollars she has left back into pounds at $£1 = \$1.36$

How many pounds does she get? Give your answer to the nearest penny.

£

(Total for Question E5 is 4 marks)

- E6** The exchange rate is $€1 = £0.85$

Sofia changes £340 into euros. How many euros does she get?

€

(Total for Question E6 is 2 marks)



HIGHER*Higher tier only*

- E7** In March the exchange rate was $\text{£}1 = \$1.25$. In April the value of the pound was 4% higher. Kai changes $\text{£}600$ into dollars in April. How many more dollars does he get than he would have got in March?

\$

(Total for Question E7 is 3 marks)

- E8** A bank takes 3% commission from the pounds, then changes the rest at $\text{£}1 = \text{€}1.20$. Omar gets $\text{€}1164$. How many pounds did he change?

£

(Total for Question E8 is 3 marks)

- E9** A bureau sells euros at $\text{£}1 = \text{€}1.18$ and buys euros back at $\text{£}1 = \text{€}1.24$. Jo changes $\text{£}500$ into euros. She does not spend any of them, and changes all the euros back. Work out the percentage of her money that Jo loses. Give your answer to 1 decimal place.

..... %

(Total for Question E9 is 4 marks)

E10 A car costs € a in Germany and £ b in the UK.

When £1 = €1.15, the car costs £1200 less in Germany than in the UK.

When £1 = €1.25, the car costs £2000 less in Germany than in the UK.

Find the value of a and the value of b

$a = \dots\dots\dots$ $b = \dots\dots\dots$

(Total for Question E10 is 5 marks)

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