# Maths: for every day

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Maths is fundamental to many every day activities and matters: buying food, paying council tax, mortgage interest, rent, loans, gas, electricity, water bills, travel fares, insurance, income tax, pensions, social benefits, bank accounts, measuring, weighing, savings, investments, salaries, forecasting, budgeting, comparing, and on and on.

Research by UCL and Cambridge universities in 2018 found around one in three adults could not correctly answer the following questions:

1. Suppose, upon your trip to the grocery store you purchase four types of tea packs: Chamomile Tea (£4.60), Green Tea (£4.15), Black Tea (£3.35) and Lemon Tea (£1.80). If you paid for all these items with a £20 note, how much change would you get?

2. Suppose, a litre of cola costs $3.15. If you buy one-third of a litre of cola, how much will you pay?

Four-in-ten adults in England and Northern Ireland could not correctly apply a simple discount to an everyday household product they might buy when shopping.
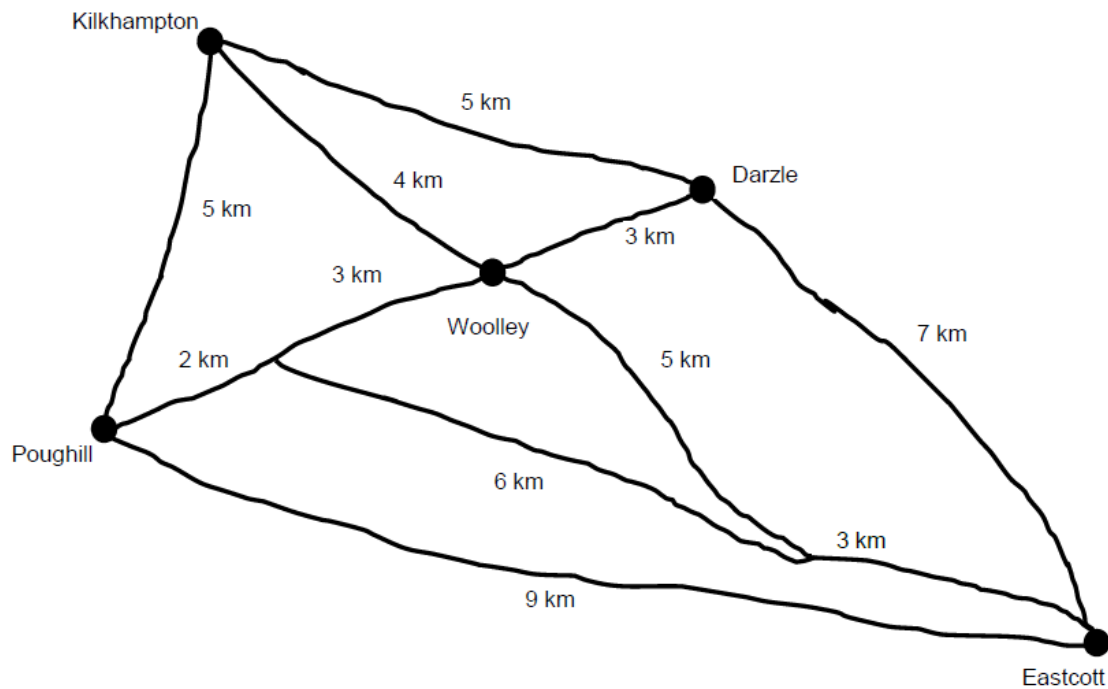
Professor John Jerrim of UCL said: "This new research highlights how England is facing a crisis in terms of adults' financial literacy skills. We all need to be able to conduct basic financial calculations in order to make rational well-informed decisions."

To test your ability to correctly deal with everyday matters that require maths, try the following functional and financial maths questions.

# The following questions test your <u>functional</u> maths skills

Questions based on actual examination papers (source: OCR, AQA)
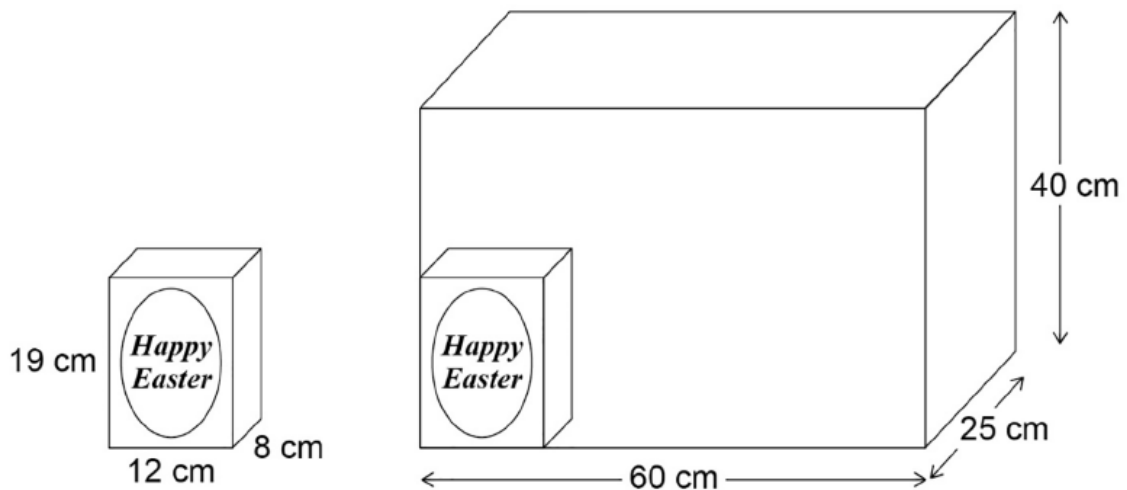
**Entry Level 3**



Johan runs a taxi company and he charges £1.80 for each km for 2 people travelling together. He travels by the shortest route.

1) What is the fare for a taxi journey from Kilkhampton to Eastcott?  [3 marks]

2) Johan is paid for the taxi journey with £10 notes.  How much change will he give for two passengers? [2 marks]

**Level 2**



1) Happy Easter cards are packed into boxes. Work out the maximum number of Easter card boxes that can be packed into the crate. [4 marks]  Give yourself 6 minutes to complete the question.

2) Ambeli takes 98 small cards and 54 large cards to an Easter fair.  She sells
65 small cards for £1.60 each, and the rest of the small cards for £1.25 each
2/3 of the large cards for £3.50 each and the rest of the large cards for £2.50 each

The total cost of making the cards was £150.  She says: "My profit is **more than** £180"  Is she correct?  You **must** show your working [6 marks]

# The following questions test your <u>financial</u> maths skills

1. Elspeth wants a car for her commute to and from work. She has seen a car she can lease for £2000 upfront then 36 monthly payments of £100. She has seen the same car on sale for £6000. If she bought the car, she could get a personal loan of £6000 from her bank at 4.5%pa. She reckons she could pay the interest and money back from her salary and sell the car after 3 years for at least £500.

    I. Which option is the lowest cost to Elspeth.

2. Harinch wants to recover VAT on some equipment he bought. He has lost the receipt but remembers it was for a total of £1650 including VAT.

    I. What was the VAT (VAT is charged at 20%).

    II. Show your calculation to check the VAT figure is correct

3. Golan is a basic rate (20%) tax payer. He wants to put 50% of his £40,000 pa salary (before tax) into his pension.

    I. How much (in pounds) will the government contribute to his pension pot?
    II. How much will Golan contribute?

4) Harmeen spent £1000 to buy Rupees to take with her on her holiday to Mauritius.

Unfortunately, the travel company collapsed before she started her holiday so Harmeen had to sell her Rupees and buy back pounds.

    I. How many pounds did Harmeen lose on her currency transactions?

| Currency Dealer quote | |
|---|---|
| **£1:Rupees** | |
| We Sell | R41.525 |
| We Buy | R51.266 |

5) CPI is rising by 5%. Aluid's current salary is £30000.

    I. How much should her salary increase to keep up with inflation?

6) Gerul bought 100 shares in Geta Bank at £1.90 per share in January. He received a dividend of 10p per share in December. He checked the share price at year end and it was £1.47 per share.

    I.      What was the value of his portfolio at the start of the year and at the end?

    II.     How much (as a %) had his portfolio reduced in the year?

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7) Sameena has popped into the grocery store for some oil.
A small 125ml bottle of premium cold-pressed oil sells for £1.10p, but she can buy a pack of 20 for £30.00

    I.      How much will Sameena save or lose per bottle, if she decides to buy it separately instead of part of a pack?

    Sameena turns around and sees a Special Offer of 20% off all purchases of £25 or more.

    II.     What is the cost per bottle if she buys in bulk and also gets 20% off?
    III.    Should she now decide to buy in bulk?
    IV.    Explain your answer to question III

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8) Lang is trying to determine whether he has kept his expenses lower than his income this quarter, and whether as a whole he owns more than he owes. Help Lang prepare
a) income and expense statement and state what his net income or expense was
b) his balance sheet and state what his net worth is.
He gives you the following information relating to the quarter.

| | | | | |
|---|---|---|---|---|
| 2500 | Food paid | | ISA interest received | 400 |
| 3000 | Credit Cards interest paid | | Salary received | 25000 |
| 8000 | Loan outstanding balance | | Car owned | 600 |
| 800 | Entertainment costs paid | | Loan interest paid | 900 |
| 2500 | Holiday paid in cash | | Council tax - to pay | 3000 |
| 5000 | Jewellery and clothes owned | | ISA (started last year) | 5000 |

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9) Fill in the missing words       Risk equals ******       Time is *****