🚫 You may **not** use a calculator for these questions.

1 Write down a prime number and a factor of 12 that add up to 13.

2 Write 630 as a product of prime factors using indices.

3 Find the highest common factor of 18, 36 and 40.

4 Write these numbers in ascending order:
-3.2 -11.5 1.4 -8.3 -3.5

5 Calculate
   a £32.99 + £18.74   **b** £54.99 ÷ 3

6 Work out
   a 23 × 0.14   **b** 27 × 149

7 Work out $\frac{1}{3}$ of 81.

8 Work out 345 ÷ 11, giving your answer as a mixed number.

9 **a** Write $\frac{3}{8}$ as a decimal.
   b Write 0.7 as a percentage.

10 Give your answer to each of these calculations in its simplest form.
   a Write 70% as a fraction.
   b Write 0.8 as a fraction.

11 Which of these fractions is larger than $\frac{1}{4}$?
$\frac{1}{2}$ $\frac{2}{7}$ $\frac{3}{11}$ $\frac{2}{5}$

12 Give your answer to each of these calculations in its simplest form.
   a $\frac{3}{5} + \frac{1}{7}$ **b** $2\frac{1}{5} - \frac{7}{10}$ **c** $\frac{2}{3} \div \frac{4}{9}$

13 Which of these is larger?
$0.25 - 0.07$ or $\frac{2}{3} - \frac{1}{2}$

14 Work out $\frac{3}{5} \times 1\frac{1}{4}$.

15 Write 0.045 as a fraction. Give your answer in its simplest form.

16 Find 25% of £8.60.

17 Work out
   a $(-3)^2$ **b** $\sqrt[3]{125}$

18 Write each of the following in standard form
   a 3 400 000 000   **b** 0.000000304

19 The length of a journey is measured as 37.6 miles to the nearest tenth of a mile.
Write down the error interval for the length of the journey.

20 Here are three cards.

   a Write down the largest two-digit multiple of 3 that can be made using the cards. Each card may be used only once.

| 2 | 5 | 1 |

   b Write down all the two-digit numbers that can be made using these cards.

21 A unit of electricity costs 9.086p. On average a family uses 242.6 units a month.
   a Work out an estimate for the cost of electricity for a year.
   b Is your answer an overestimate or an underestimate? Give a reason for your answer.

22 At a school of 600 students, 40% of the students cycle to school and $\frac{1}{5}$ walk. The rest travel by bus. How many travel by bus?

23 Rhiannon's result in a test is less than 50%. Her mark is a multiple of 5. She answered more than $\frac{1}{3}$ of the questions correctly. What is the smallest value her mark could be?

24 Barbara says: 'the sum of three different prime numbers will always be odd'.
Is she correct? Explain your answer.

🖩 You **may** use a calculator for these questions.

25 In a sale, a musical instrument that normally costs £349 is reduced by 20%. What is the new price of the instrument?

26 Round 3.05092 to
   a 1 decimal place   **b** 3 significant figures

27 Round 324 567 to
   a the nearest thousand
   b 2 significant figures

28 Find the value of 3^6.

29 Four people share the cost of an outing equally between them. The costs are:
Group travel card   £26.25
Picnic   £18.23
4 tickets at   £5.50 each
How much does each person pay?

30 19% of people in a town own a cat. The population is 18 000. How many people own a cat?

31 The table gives information about the price (in pence) of fuel in the UK.

2010	2011	2012	2013	2014	2015	2016
111.4	127.8	133.4	132.9	130.1	108.2	102.3

   a Between which two years was the greatest fuel price increase?
   b Between 2016 and 2017 the price increased by 10%. What is the price of petrol in 2017?