Chapter 1

GCSE Revision - Number Questions

Standard Form, Bounds, Percentages, Direct/Indirect Proportion, Fractions, Line Graphs, LCM.

1. (a) Write 7.8^{-4} as an ordinary number. **(1)**

.....

(b) Write 95600000 as a number in standard form. **(1)**

.....

Total for Question 1 is 2 marks

2. In a sale normal prices are reduced by 20%. A washing machine has a sale price of £464. By how much money is the normal price of the washing machine reduced? **(3)**

£.....

3. y is directly proportional to the square of x. When $x = 3$, $y = 36$. Find the value of y when $x = 5$. **(4)**

4.

$$m = \frac{\sqrt{s}}{t}$$

$s = 3.47$ correct to 2 decimal places.

$t = 8.132$ correct to 3 decimal places.

By considering bounds, work out the value of m to a suitable degree of accuracy. You must show all your working and give a reason for your final answer.

5. (a) Write 8.2×10^5 as an ordinary number. **(1)**

(b) Write 0.000376 in standard form. **(1)**

(c) Work out the value of $(2.3 \times 10^{12}) \div (4.6 \times 10^3)$. Give your answer in standard form. **(2)**

Total for Question 5 is 4 marks

6. h is inversely proportional to the square of r. When $r = 5$, $h = 3.4$. Find the value of h when $r = 8$. **(3)**

$h =$ .....

7. Dan does an experiment to find the value of π. He measures the circumference and the diameter of a circle. He measures the circumference, C, as 170 mm to the nearest millimetre. He measures the diameter, d, as 54 mm to the nearest millimetre.

   Dan uses $\pi = \dfrac{C}{d}$ to find the value of π. Calculate the upper bound and the lower bound for Dan's value of π. **(4)**

upper bound = ...

lower bound = ...

8. Viv wants to invest £2000 for 2 years in the same bank.

The International Bank	**The Friendly Bank**
Compound Interest	Compound Interest
4% for the first year	5% for the first year
1% for each extra year	0.5% for each extra year

   At the end of 2 years, Viv wants to have as much money as possible. Which bank should she invest her £2000 in? **(4)**

9. One sheet of paper is 9×10^{-3} cm thick. Mark wants to put 500 sheets of paper into the paper tray of his printer. The paper tray is 4 cm deep.

   Is the paper tray deep enough for 500 sheets of paper? You must explain your answer. **(3)**

10. The normal price of a television is reduced by 30% in a sale. The sale price of the television is £350 Work out the normal price of the television. **(3)**

£ .....

11. Write the following numbers in order of size. Start with the smallest number. **(2)**

$$0.038 \times 10^2 \qquad 3800 \times 10^{-4} \qquad 380 \qquad 0.38 \times 10^{-1}$$

12. Talil is going to make some concrete mix. He needs to mix cement, sand and gravel in the ratio 1 : 3 : 5 by weight.

    Talil wants to make 180 kg of concrete mix. Talil has

    15 kg of cement

    85 kg of sand

    100 kg of gravel

    Does Talil have enough cement, sand and gravel to make the concrete mix? **(4)**

13. Work out an estimate for $\dfrac{31 \times 9.87}{0.509}$. **(3)**

14. The average fuel consumption (c) of a car, in kilometres per litre, is given by the formula

$$c = \frac{d}{f}$$

where d is the distance travelled, in kilometres, and f is the fuel used, in litres.

d = 163 correct to 3 significant figures.

f = 45.3 correct to 3 significant figures.

By considering bounds, work out the value of c to a suitable degree of accuracy. You must show all of your working and give a reason for your final answer. **(5)**

$c =$ .....

15. (a) Write 6.43×10^5 as an ordinary number. **(1)**

.....

(b) Work out the value of $2 \times 10^7 \times 8 \times 10^{-12}$ Give your answer in standard form. **(2)**

.....

16.

$$p^2 = \frac{x - y}{xy}$$

$x = 8.5 \times 10^9$

$y = 4 \times 10^8$

Find the value of p. Give your answer in standard form correct to 2 significant figures. **(3)**

17. Liam invests £6200 for 3 years in a savings account. He gets 2.5% per annum compound interest.

How much money will Liam have in his savings account at the end of 3 years? **(3)**

£.....

18. Express the recurring decimal $0.2\dot{8}\dot{1}$ as a fraction in its simplest form. **(3)**

.....

19. (a) Write down the value of 10^0. **(1)**

.....

(b) Write 6.7×10^{-5} as an ordinary number. **(1)**

.....

(c) Work out the value of $(3 \times 10^7) \times (9 \times 10^6)$. Give your answer in standard form. **(2)**

.....

Total for Question 19 is 4 marks

20. (a) Work out the value of $(6 \times 108) \times (4 \times 10^7)$. Give your answer in standard form. **(2)**

.....

(b) Work out the value of $(6 \times 10^8) + (4 \times 10^7)$. Give your answer in standard form. **(2)**

.....

21. Use your calculator to work out

$$\sqrt{\frac{921 - 170\tan 65^\circ}{0.012 + 0.034}}$$

(a) Write down all the figures on your calculator display. You must write your answer as a decimal. **(2)**

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22. (a) Write 82500000 in standard form. **(1)**

(b) Work out $(5.2 \times 10^{-7}) \times (2.8 \times 10^{-9})$. Give your answer in standard form. **(2)**

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23. P is inversely proportional to V. When $V = 8,\ P = 5$

(a) Find a formula for P in terms of V. **(3)**

(b) Calculate the value of P when $V = 2$. **(1)**

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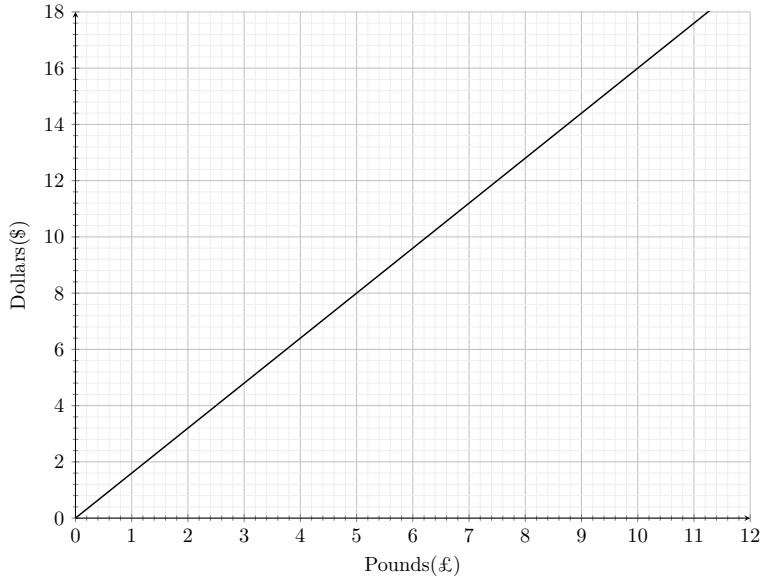
24. Work out 1.83×47.

25. You can use this conversion graph to change between pounds (£) and dollars ($).



(a) Use the conversion graph to change £5 to dollars. **(1)**

$.....

Ella has $200 and £800. Her hotel bill is $600. Ella pays the bill with the $200 and some of the pounds

(b) Use the conversion graph to work out how many pounds she has left. **(4)**

£.....

Total for Question 25 is 4 marks

26. Trams leave Piccadilly

to Eccles every 9 minutes to Didsbury every 12 minutes

A tram to Eccles and a tram to Didsbury both leave Piccadilly at 9 a.m. At what time will a tram to Eccles and a tram to Didsbury next leave Piccadilly at the same time? **(3)**

.....

27. Given that $1793 \times 185 = 331705$. Write down the value of

(a) 1.793×185

(b) $331705 \div 1.85$

Total for Question 27 is 2 marks

28. Write 525 as a product of its prime factors. **(3)**

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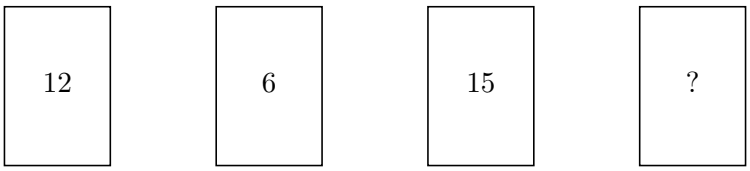
29. Ed has 4 cards. There is a number on each card.



The mean of the 4 numbers on Ed's cards is 10. Work out the number on the 4th card.

(3)

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30. Here are the ingredients needed to make 12 shortcakes.

Shortcakes
Makes **12** shortcakes
50 g of sugar
200 g of butter
200 g of flour
10 ml of milk

Liz makes some shortcakes. She uses 25 ml of milk.

(a) How many shortcakes does Liz make? **(2)**

Robert has

500 g of sugar

1000 g of butter

1000 g of flour

500 ml of milk

(b) Work out the greatest number of shortcakes Robert can make. **(2)**

Total for Question 30 is 4 marks

31. Buses to Acton leave a bus station every 24 minutes. Buses to Barton leave the same bus station every 20 minutes. A bus to Acton and a bus to Barton both leave the bus station at 9:00 am.

When will a bus to Acton and a bus to Barton next leave the bus station at the same time? **(3)**

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32. Work out an estimate for the value of $(0.49 \times 0.61)^2$. **(2)**

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33. (a) Work out $\frac{2}{3} \div \frac{5}{6}$. Give your fraction in its simplest form. **(3)**

(b) Work out $2\frac{1}{3} - 1\frac{2}{5}$. **(3)**

Total for Question 33 is 6 marks

34. (a) Work out $2\frac{17}{20} - 1\frac{2}{5}$. **(3)**

(b) Work out $2\frac{2}{3} \times 1\frac{3}{4}$. **(3)**

Total for Question 34 is 6 marks

35. Work out $3\frac{1}{4} \times 2\frac{2}{3}$. Give your answer in its simplest form. **(3)**

36. The diagram shows the floor of a village hall.

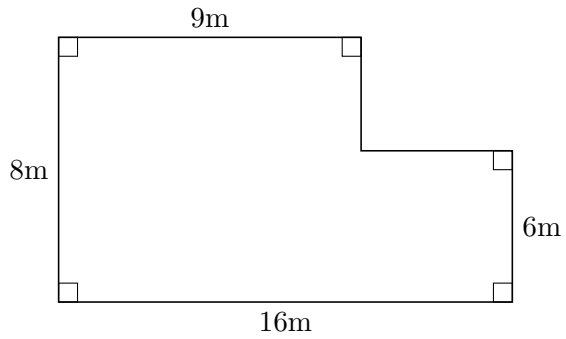

Diagram **NOT** accurately drawn

The caretaker needs to polish the floor.

One tin of polish normally costs £19.

One tin of polish covers 12 m^2 of floor.

There is a discount of 30% off the cost of the polish. The caretaker has £130.

Has the caretaker got enough money to buy the polish for the floor? You must show all your working.