




5.



Asim threw a die 30 times. Here are the scores he gets :

2 3 1 5 5 2 6 4 1 3  
2 1 3 1 5 3 3 3 2 1  
4 5 6 1 6 2 4 3 2 4

Complete the table chart below. You can use the middle column if you want to, but you do not have to. The first line has been done for you ( NOTE : ~~HHH~~ = 5 )

| Score | Tally                                                                               | No of times |
|-------|-------------------------------------------------------------------------------------|-------------|
| 1     |  | 6           |
| 2     |                                                                                     |             |
| 3     |                                                                                     |             |
| 4     |                                                                                     |             |
| 5     |                                                                                     |             |
| 6     |                                                                                     |             |

Which number came up most often ?

Answer : .....

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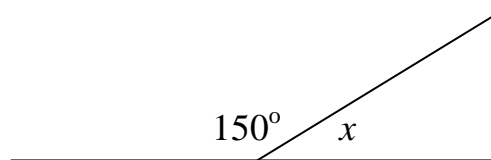
6. Imran wanted a length of wood 1.83 m long. He measured a piece he had in the garage. It was 10 cm too short. How long was the piece in the garage? (You can give your answer in metres or centimetres).

Answer : .....

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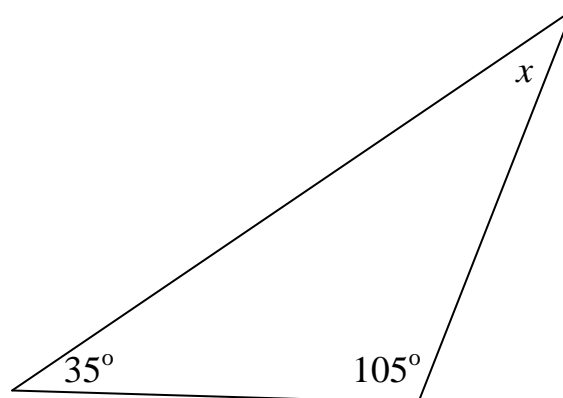
7. In each of the following, write down the size of the angle marked  $x$  (you do not need to give a reason for your answer) :

(a)



Answer :  $x = \dots^\circ$

(b)



Answer :  $x = \dots^\circ$

---

8. Write down the number halfway between :

(a) 45 and 55 Answer : .....

(b) 25 900 and 26 500 Answer : .....

(c) 0.3 and 0.9 Answer : .....

These are a little more tricky .....

(d) 0.1 and 1 Answer : .....

(e) -2 and 8 Answer : .....

(f)  $\frac{1}{2}$  and  $\frac{3}{4}$  Answer : .....

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9. In each of the following numbers there are two 7s. Each time, answer the question : How many times larger is the first 7 than the second ? (the answer to (a) is given)

(a) 77.132 Answer : 10

(b) 707.1 Answer : .....

(c) 7042.547 Answer : .....

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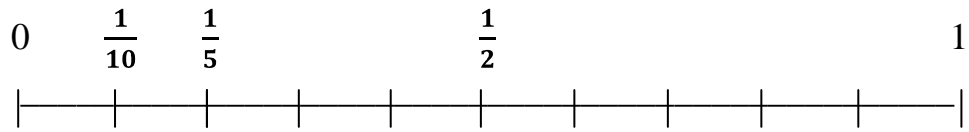
10. Fill in the missing number for each of the following :

(a)  $100 \times \dots = 45$  (b)  $4.2 \times \dots = 4\,200$

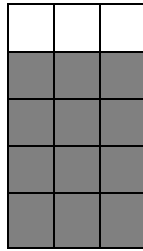
(c)  $\dots \div 1\,000 = 0.653$  (d)  $\dots \div 100 = 1.6$

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11. (a) Fill in each of the missing fractions on the number line between 0 and 1. (write each fraction in its simplest form )



- (b) (i)



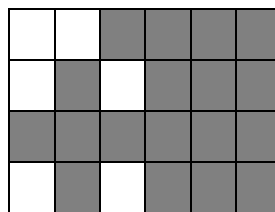
What fraction of the squares in the diagram are shaded (grey) ?

Answer : .....

Write this fraction as a percentage.

Answer : ..... %

- (ii)



Now do exactly the same for this diagram.

What fraction of the squares in the diagram are shaded (grey) ?

Answer : .....

Write this fraction as a percentage.

Answer : ..... %

12. Write as a number : seventy million seventeen thousand and seven

Answer .....

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13. The coldest temperature ever recorded on earth (at Vostok station in Antarctica) is  $-89^{\circ}\text{C}$ .  
The hottest temperature ever recorded (it was somewhere in Libya) is  $58^{\circ}\text{C}$ .  
By how many degrees Celcius is the 'hottest hot' greater than the 'coldest cold' ?

Answer : ..... $^{\circ}\text{C}$

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14. Write the correct operation ( + , - ,  $\times$  or  $\div$  ) in the box to make each of the following true :

(a)  $5 \square 7 \times 2 = 19$

(b)  $21 \square 3 + 11 = 18$

(c)  $12 \square 2 \square 4 \square 5 = 26$

---

15. Put in brackets where needed to make each of these statements true.

(a)  $5 \times 4 + 3 = 35$

(b)  $24 - 6 - 3 + 8 = 7$

(c)  $11 + 21 \div 7 + 9 = 2$

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16.



Lucinda runs at an average speed of 8 miles per hour. How far does she run in

(a) 30 minutes ?

Answer : .....

(b) two and a half hours ?

Answer : .....

(c) 1.75 hours ?

Answer : .....

Her friend Amy ran 30 miles in 4 hours. Amy says her average speed is faster than Lucinda's. Is she correct ? (show all your working clearly).

Answer : .....



Beth can burn 900 calories per hour on the 'rowing machine' in our gym.  
How many calories can she burn in 24 minutes ?

Answer .....

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17.



Here are a few partly completed ‘columns’ of a bus timetable, showing the arrival times at various stops on the X4 route between Northampton and Peterborough.

Assume each journey takes exactly the same time throughout the day, and fill in all the missing times :

|                |       |       |       |
|----------------|-------|-------|-------|
| Northampton    | 08:45 | 09:18 |       |
| Wellingborough | 09:15 |       |       |
| Kettering      | 09:45 |       |       |
| Corby          | 10:05 |       |       |
| Oundle         | 10:38 |       |       |
| Peterborough   | 11:00 |       | 17:45 |

Maggie travels from Northampton to Oundle every day, and her friend, Betty, travels from Wellingborough to Peterborough. Whose journey is longer, and by how many minutes ? (show your working).

Answer : .....’s journey is longer by ..... minutes

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18. Continue the sequences, giving the next three terms each time :  
( (c) and (d) are quite tricky )

(a) 2, 8, 14, 20, ..... , ..... , .....

(b) 16, 8, 4, 2, ..... , ..... , .....

(c) 52, 41, 11, 30, 19, ..... , ..... , .....

(d) 4, 6, 9, 14, 21, 32, 45, ..... , ..... , .....

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19.



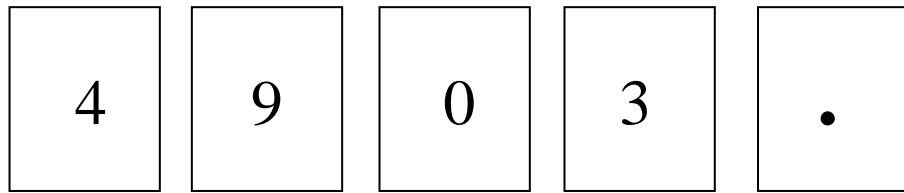
VAT (value added tax) in the UK went up from 17.5% to 20% on 4<sup>th</sup> January 2011. Miranda's mother bought her new car just before the increase, and paid £20 000 plus £3 500 VAT (a total of £23 500).

Work out how much Miranda's mother saved by buying her car before the VAT increase (you can assume that the price of the car without tax remained at £20 000).

Answer : .....

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20.



You are given these five cards. In both Game A and Game B, you use all 5 cards to make a number, but **you must use each card once and only once.** However, each game has an **extra** rule that you must obey in making your number.

### **GAME A**

**Rule** : there must be at least one digit after the decimal point, and your last digit must not be zero.

**Challenge** : Use your 5 cards to make the largest number possible.

Answer : .....

### **GAME B**

**Rule** : there must be at least one digit before the decimal point, and the first digit must not be zero.

**Challenge** : Use your 5 cards to make the smallest number possible.

Answer : .....

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**END OF SECTION A**

**SECTION B**

21. Work out :  $1 + \frac{1}{1 + \frac{1}{2}}$

**( SHOW YOUR WORKING )**

Answer : .....

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22. Anil runs faster than Barry, and Dave will always beat Charlie in a race. Barry is never beaten by Ed. One day, all five race against each other/ Which of the following results is possible ?

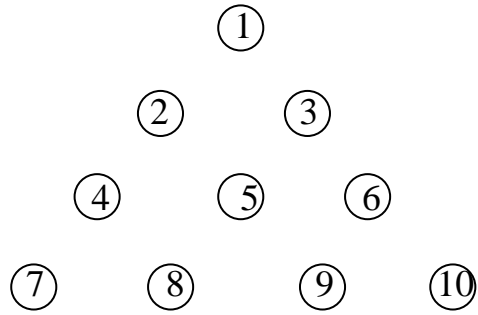
(note : the result is always written in order of finishing, so ABCDE means Anil first, Barry second, Charlie third, Dave fourth and Ed fifth).

- (a) ABCDE
- (b) BEDAC
- (c) ABCED
- (d) ADBCE
- (e) ADCEB

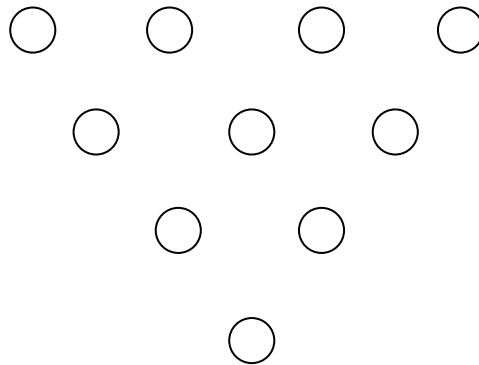
Answer : .....

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23.



Only three of these circles need to be moved to make the triangle point downwards, so that it looks like this :



Write a number on each of the circles above to show the 'new arrangement'.

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24. Gareth's wealthy father invested a million pounds (£1 000 000) in a high-interest investment account at his local bank. At the end of each year, the bank paid him 10% interest. Instead of spending the interest, at the end of each year, Gareth's father put the interest back into the investment, so that each year he earned 10% interest on a larger and larger investment.

(a) How much interest did he earn at the end of the first year ?

Answer : .....

(b) How much was his investment worth at the start of the second year?

Answer : .....

(c) How much interest did he earn at the end of the second year ?

Answer : .....

(d) How much was his investment worth at the start of the third year ?

Answer : .....

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25. Each letter from A to G is a code for one of these digits :

1, 3, 4, 5, 6, 8 or 9

Use the information below to crack the code.

$$D + D = A$$

$$D \times D = BC$$

$$D + E = BF$$

$$G \times E = DG$$

$$E + E = BA$$

$$E \times E = AB$$

$$D \times E = FC$$

Answer : A = .... B = .... C = .... D = .... E = .... F = .... G = ....

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26. In English, words like EVE, MADAM, KAYAK and LEVEL are called PALINDROMES, because they read the same from left to right as they do from right to left.

In mathematics, numbers like 747, 5555, 11 911, and 2 378 732 are called PALINDROMIC NUMBERS for the same reason.

How many palindromic numbers are there between 1000 and 9 999 ?

(PLEASE REMEMBER TO SHOW US YOUR WORKING SO THAT WE CAN SEE HOW YOU ARE GETTING YOUR ANSWER, AND MAYBE BE ABLE TO AWARD YOU SOME PART-MARKS EVEN IF YOUR ANSWER IS WRONG).

Answer : .....

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**END**