AVERAGES

Task 1 – For each of the following questions, work out the mean, median, mode and range of:

1) 4, 6, 8, 10, 12
   Mean = 8
   Median = 8
   Mode = none
   Range = 8

2) 3, 7, 7, 9, 11
   Mean = 7.4
   Median = 7
   Mode = 7
   Range = 8

3) 5, 9, 12, 15, 20
   Mean = 12.2
   Median = 12
   Mode = none
   Range = 15

4) 2, 4, 6, 8, 8
   Mean = 5.6
   Median = 6
   Mode = 8
   Range = 6

5) 10, 15, 20, 25, 30, 35
   Mean = 22.5
   Median = 22.5
   Mode = none
   Range = 25

6) 7, 12, 12, 18, 21, 21, 21
   Mean = 16
   Median = 18
   Mode = 21
   Range = 14

7) 1, 4, 4, 4, 9, 11, 15
   Mean = 6.86 (2 dp)
   Median = 4
   Mode = 4
   Range = 14

8) 5, 7, 8, 12, 15, 18, 20, 22
   Mean = 13.375
   Median = 13.5
   Mode = none
   Range = 17

9) 3, 6, 6, 9, 12, 15, 15, 18, 21
   Mean = 11.67 (2 dp)
   Median = 12
   Mode = 6 and 15
   Range = 18

10) 14, 14, 15, 16, 17, 20, 22, 25, 25, 30
    Mean = 19.8
    Median = 18.5
    Mode = 14 and 25
    Range = 16

Task 2

11) The mean of 5 numbers is 12. Four of the numbers are 10, 8, 15, and 13. Find the missing number.

$$\frac{10+8+15+13+x}{5} = 12$$

$$\frac{x+46}{5} = 12$$

$$x + 46 = 60$$

Missing number = 14

12) The mean of 8 numbers is 6. Seven of the numbers are 5, 8, 7, 4, 3, 9, and 6. Find the missing number.

$$\frac{5+8+7+4+3+9+6+x}{8}=6$$

$$\frac{x+42}{8}=6$$

$$x+42=48$$

Missing number = 6

13) The mean weight of 6 boxes is 20 kg. If 5 of the boxes weigh 18 kg, 22 kg, 19 kg, 25 kg, and 15 kg, find the weight of the last box.

$$\frac{18+22+19+25+15+x}{6}=20$$

$$\frac{x+99}{6}=20$$

$$x+99=120$$

Missing weight = 21 kg

14) The mean score of 10 students is 72. The total score of 9 students is 650. Find the score of the 10th student.

$$\frac{650+x}{10}=72$$

$$650+x=720$$

Score = 70

15) The mean of 6 numbers is 15. If one number is removed, the mean of the remaining 5 numbers becomes 14. Find the number that was removed.

$$\frac{Total}{6}=15$$

$$Total=90$$

$$\frac{90-x}{5}=14$$

$$90-x=70$$

Number removed = 20

16) The mean of 5 numbers is 18. If another number is added, the new mean becomes 17. Find the number that was added.

$$\frac{Total}{5}=18$$

$$Total=90$$

$$\frac{x+90}{6}=17$$

$$x+90=102$$

Number added = 12

17) The mean of a group of 4, year 7 pupils is 15. The mean of a group of 6, year 8 pupils is 18. What is the mean of the combined group?

$$\frac{Total}{4}=15$$

$$Total=60$$

$$\frac{Total}{6}=18$$

$$Total=108$$

$$Mean=\frac{108+60}{10}=\mathbf{16.8}$$

18) The mean of 12 test scores is 65. The mean of 8 of those scores is 70. Find the mean of the remaining 4 scores.

$$\frac{Total}{12}=65$$

$$Total=780$$

$$\frac{Total}{8}=70$$

$$Total=560$$

$$780-560=220$$

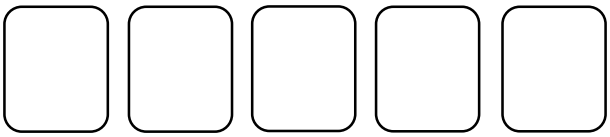
$$Mean=\frac{220}{4}=\mathbf{55}$$

Challenge

19) The mean of 5 numbers in ascending order is 6.2. The numbers satisfy the following:

- The first number is even.
- The mode is 3.
- The range is 15.

Find a possible set of numbers.



2, 3, 3, 6, 17

20) Two classes take a maths test. Class A has 15 students with a mean score of 68. Class B has 25 students with a mean score of 74. One student joins Class A, and the combined mean of the classes is now 72. What did the new student score?

Class A:

$$\frac{Total}{15} = 68$$

$$Total = 1020$$

Class B:

$$\frac{Total}{25} = 74$$

$$Total = 1850$$

Combined mean:

$$\frac{1020 + 1850 + x}{15 + 25 + 1} = 72$$

$$\frac{2870 + x}{41} = 72$$

$$2870 + x = 2952$$

$$x = 82$$

New score = 82