1 Seven positive numbers have a mean of 5.

Six of the numbers are 　　2　　2　　3　　5　　7　　10

Work out the other number. **[3 marks]**

Answer _____

2 Six positive numbers have a mean of 20.

Five of the numbers are 　　13　　14　　20　　20　　35

Work out the median of all six numbers. **[4 marks]**

Answer _____

7

3   Pamai completes tests in Maths, English, Science, History, R.E and Spanish.

The table below shows Pamai's test scores in five of her subjects.

Subject	Maths	English	Science	History	R.E.
Score (%)	82	57	84	63	77

For all six subjects Pamai's mean score is 72%

Work out Pamai's test score in Spanish.   **[3 marks]**

Answer _____ %

4   A football team recorded how many goals they scored in their first 8 matches.
The table below shows the number of goals scored for the first 7 of those games.

Game Number	1	2	3	4	5	6	7
Goals Scored	3	1	1	0	1	0	2

The mean number of goals scored for all 8 games was 1.5

Work out the number of goals scored in the 8th game.   **[3 marks]**

Answer _____

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5 The mean age of 9 members at a running club is 25 years.

A new member joins the club and the mean age increases to 26 years.

Work out the age of the new member of the running club. **[3 marks]**

Answer _____

6 The mean weekly pay of 4 workers at a company is £600.

A new worker joins the company and is paid £700 per week.

Work out the new mean pay of all workers at the company. **[3 marks]**

Answer £ _____

12

Turn over ▶

7 Six positive numbers have

a mean of 29
a range of 21

Four of the numbers are   19   21   35   37

Work out the other two numbers.   **[3 marks]**

Answer _____ and _____

8 Seven positive numbers have

a mean of 12
a median of 13
a mode of 14

Four of the numbers are   8   10   14   19

Work out the range of the seven numbers.   **[4 marks]**

Answer _____

9   Rachel recorded the temperature in her town on each day for 1 week.

The mean temperature for the 5 days from Monday to Friday was 11°C
The mean temperature for all 7 days was 13°C

On Saturday, the temperature was 21°C
Work out the temperature for Sunday.

[4 marks]

Answer _____ °C

10   15 students complete a maths test.
The mean score of all 15 students is 71%

One of the students is found to have cheated in the test.
The score of the student who cheated is removed and the mean score of the remaining students is 69%

Work out the test score of the student who cheated in the test.

[3 marks]

Answer _____ %

14

Turn over ▶

11 The mean mass of Mercury, Earth and Mars is 2.3×10^{24} kg
The mean mass of Mercury, Earth, Mars and Venus is 2.95×10^{24} kg

Work out the mass of Venus.
Give your answer in standard form.   **[3 marks]**

Answer _____ kg

12 From Monday to Thursday the mean amount of time it took Ryan to travel to work was 35 minutes.

The mean amount of time it took Ryan to get to work from Monday to Friday was 44 minutes.

On Friday Ryan left his house at 7:45 am. He must arrive to work by 9:00 am.

Show clearly that Ryan was late to work.
You must show all your working.   **[4 marks]**

13 In a class there are 15 males and 12 females

The mean height of the males is 172 cm
The mean height of the females is 163 cm

Work out the mean height for all of the students in the class. **[3 marks]**

Answer _____ cm

14 A theme park wants to ensure that the mean amount of time spent queuing for rides is less than 1 hour.

On Friday, Saturday and Sunday some visitors were asked how long they queued for a ride.

Day	Friday	Saturday	Sunday
Number of visitors asked	155	200	187
Mean time spent queuing (minutes)	54	66	58

Show clearly that the mean amount of time spent queuing for all visitors asked on Friday, Saturday and Sunday was less than 1 hour. **[4 marks]**

14

Turn over ▶

15   A film trilogy contains 3 films.
The mean length of films in the trilogy is 1 hour 47 minutes

The first film is 1 hours 54 minutes long
The second film is 1 hour 22 minutes long

Work out the length of the third film.
Give your answer in hours and minutes.   **[4 marks]**

Answer _____ hours _____ minutes

16   In a garden there are 50 rose plants and 45 tulip plants.

The mean height of the rose plants is 40 cm
The mean height of the tulip plants is 21 cm

Work out the mean height of all plants in the garden   **[3 marks]**

Answer _____ cm

17 A vet is caring for 6 cats and 5 dogs.

The mean mass of the 5 dogs is 13.3 kg
The mean mass of all the cats and dogs is 7.9 kg

Work out the mean mass of the 6 cats. **[3 marks]**

Answer _____ kg

18 In a class there are 18 males and 12 females

The students all complete a test with a maximum score of 40 marks.

The mean mark for the male students is 27
The mean mark for the female students is 34

The teacher will reward the students if the mean mark for all students is greater than 75% of the maximum score.

Show clearly that the teacher will not reward the students. **[4 marks]**

14

Turn over ▶

19   An officer recorded the mean speed of 30 cars and 20 lorries on a
motorway.

The mean speed of the cars was 68 mph
The mean speed of all of the vehicles was 62 mph

Work out the mean speed of the lorries.   **[3 marks]**

Answer _____ mph

20   A teacher asked 20 Year 9 students, 30 Year 10 students and 25 Year 11
students how long they spent on their homework.

The mean time spent on homework by Year 9 students was 26 minutes
The mean time spent on homework by Year 10 students was 31 minutes
The mean time spent on homework by all students was 32 minutes

Work out the mean time spent on homework by Year 11 students.   **[3 marks]**

Answer _____ minutes

21 6 athletes compete in a 100 metre race with a mean race time of 12.1 seconds. The race times for 5 of the athletes are shown below.

Athlete	Jason	Zach	Billy	Trini	Kimberley
Time (secs)	11.6	12.1	13.1	12.2	11.9

Tommy also competed in the race and claims that he was the winner.
Show clearly that Tommy is incorrect. **[4 marks]**

22 A basketball team plays 18 games in a season.

In September the team plays 8 games
In October the team plays 4 games.
In November the team plays 6 games.

The mean number of points scored by the team in September is 71.
The mean number of points scored by the team in September and October is 74.
The mean number of points scored by the team in November is the same as the mean number of points scored in October.

Work out the total number of points the team scores during the entire season.

[4 marks]

Answer _____

14

Turn over ▶

23   A bag contains

       55   2p coins
       16   5p coins
        9   10p coins

Jordan adds more 5p coins to the bag
The mean value of the coins in the bag is after Jordan has added the coins is 4p.

Work out how many 5p coins Jordan added to the bag.   **[4 marks]**

Answer _____

24   Bag A, bag B and bag C each contain only blue and red counters.

Bag A contains 5 red counters and 3 blue counters.
Bag B contains 10 red counters and 4 blue counters.

The mean number of red counters in all three bags is 6.
The mean number of blue counters in all three bags is 5.

Work out the probability that a counter randomly selected from bag C is red.
                                                                     [3 marks]

Answer _____

25   Adam tracked how many minutes he spent on social media each day from Monday to Friday.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Time spent on social media (mins)		40	185	105	70

The mean amount of time he spent on social media from Monday to Friday was 30% greater than the mean amount of time he spent on social media for Monday and Tuesday.

Work out how many minutes Adam spent on social media on Monday.   **[4 marks]**

Answer _____ minutes

12