N224 Compound measures 1

Q1.

Bronwin works in a restaurant.

The table gives her rates of pay.

Day	Rate of pay
Monday to Friday	£8.40 per hour
Weekend	£11.20 per hour

Bronwin worked for a total of 20 hours last week.
She worked 8 of these 20 hours at the weekend.

Show that Bronwin was paid less than £200 last week.

(Total for question = 3 marks)

Q2.

Sean works for a company.
His normal rate of pay is £12 per hour.

When Sean works more than 8 hours a day, he is paid overtime for each hour he works more than 8 hours.

Sean's rate of overtime pay per hour is $1\frac{1}{4}$ times his normal rate of pay per hour.

On Monday Sean worked for 10 hours.

Work out the total amount of money Sean earned on Monday.

£ .....

(Total for question = 4 marks)

Q3.

Emily drives 186 miles in 3 hours.

(a) What is her average speed?

..... mph

(2)

Sarah drives at an average speed of 58 mph for 4 hours.

(b) How many miles does Sarah drive?

..... miles

(2)

(Total for question = 4 marks)

Q4.

A train travels from Madrid to Malaga at an average speed of 183 km/h.

The train leaves Madrid at 08 40
The train arrives at Malaga at 11 28

Work out the distance the train travels from Madrid to Malaga.

..... km

(Total for question = 3 marks)

Q5.

A car travels for 18 minutes at an average speed of 72 km/h.

(a) How far will the car travel in these 18 minutes?

..... km

(2)

David says,

"72 kilometres per hour is faster than 20 metres per second."

(b) Is David correct?

You must show how you get your answer.

(2)

(Total for question = 4 marks)

Q6.

A plane travels at a speed of 213 miles per hour.

(a) Work out an estimate for the number of seconds the plane takes to travel 1 mile.

..... seconds

(3)

(b) Is your answer to part (a) an underestimate or an overestimate?
Give a reason for your answer.

.....

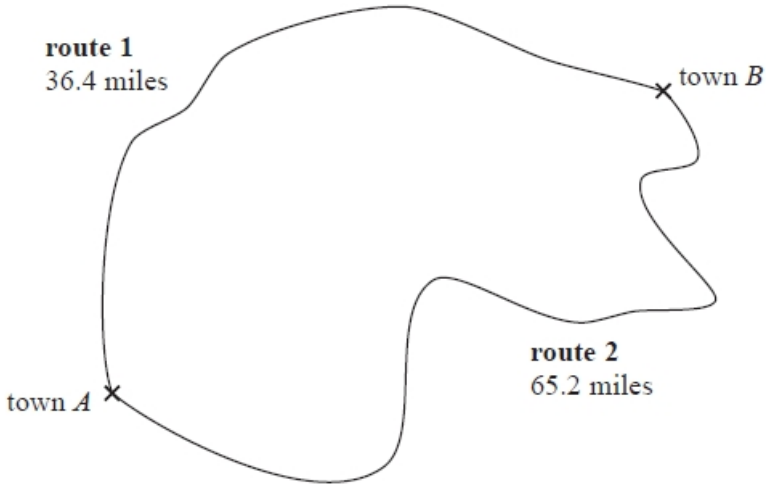
.....

(1)

(Total for question = 4 marks)

Q7.

Eric and Geraldine both drove from town *A* to town *B*.



Both Eric and Geraldine left town *A* at 2 pm.

Eric drove on route 1
He got to town *B* at 2 48 pm.

Geraldine drove on route 2
She got to town *B* at 3 25 pm.

Who drove at the greater average speed?
You must show all your working.

(Total for question = 3 marks)

Q8.

A cycle race across America is 3069.25 miles in length.

Juan knows his average speed for his previous races is 15.12 miles per hour.
For the next race across America he will cycle for 8 hours per day.

(a) Estimate how many days Juan will take to complete the race.

.....

(3)

Juan trains for the race.
The average speed he can cycle at increases.
It is now 16.27 miles per hour.

(b) How does this affect your answer to part (a)?

.....

.....

(1)

(Total for question = 4 marks)

Q9.

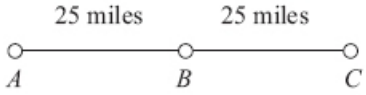
Regan cycles 78 miles in 6 hours.
His average speed for the first 30 miles is 15 miles per hour.

Work out Regan's average speed for the last 48 miles.

..... miles per hour

(Total for question = 3 marks)

Q10.



A, *B* and *C* are 3 service stations on a motorway.

AB = 25 miles
BC = 25 miles

Aysha drives along the motorway from *A* to *C.*

Aysha drives at an average speed of 50 mph from *A* to *B*.
She drives at an average speed of 60 mph from *B* to *C*.

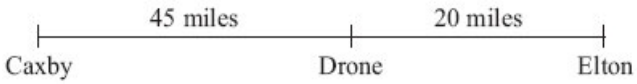
Work out the difference in the time Aysha takes to drive from *A* to *B* and the time Aysha takes to drive from *B* to *C*. Give your answer in minutes.

.....

(Total for Question is 3 marks)

Q11.

The distance from Caxby to Drone is 45 miles.
The distance from Drone to Elton is 20 miles.



Colin drives from Caxby to Drone.
Then he drives from Drone to Elton.

Colin drives from Caxby to Drone at an average speed of 30 mph.
He drives from Drone to Elton at an average speed of 40 mph.

Work out Colin's average speed for the whole journey from Caxby to Elton.

(Total for Question is 3 marks)

Q12.

Change 72 km/h into m/s.

..... m / s

(Total for question = 3 marks)

Q13.

A gold bar has a mass of 12.5 kg.

The density of gold is 19.3 g/cm^3

Work out the volume of the gold bar.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for question = 3 marks)

Q14.

A box exerts a force of 140 newtons on a table.
The pressure on the table is 35 newtons/m^2.
Calculate the area of the box that is in contact with the table.

.....

(Total for question is 3 marks)

Q15.

$$\text{Pressure} = \frac{\text{force}}{\text{area}}$$

Find the pressure exerted by a force of 720 newtons on an area of 15cm^2.
Give your answer in newtons/m^2.

..... newtons/m^2

(Total for question = 2 marks)