GCSE QUESTIONS

Q1. NON-CALCULATOR

$$p = \frac{F}{A}$$

p = pressure
F = force
A = area

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)

Q2. NON-CALCULATOR

Gary drove from London to Sheffield. It took him 3 hours at an average speed of 80km/h.

Lyn drove from London to Sheffield. She took 5 hours.

Assuming that Lyn drove along the same roads as Gary and did not take a break,

(a) work out Lyn's average speed from London to Sheffield.

..... km/h

(3)

(b) If Lyn did **not** drive along the same roads as Gary, explain how this could affect your answer to part (a).

.....

.....

(1)

(Total for question = 4 marks)

Q3. NON-CALCULATOR

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)

Q4. NON-CALCULATOR

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)

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Q5. NON-CALCULATOR

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)

Q6. NON-CALCULATOR

Sean drives from Manchester to Gretna Green. He drives at an average speed of 50 mph for the first 3 hours of his journey.

He then has 150 miles to drive to get to Gretna Green. Sean drives these 150 miles at an average speed of 30 mph.

Sean says "My average speed from Manchester to Gretna Green was 40 mph."

Is Sean right? You must show how you get your answer.

(Total for question is 4 marks)

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Q7. NON-CALCULATOR

James and Peter cycled along the same 50 km route.

James took $2\frac{1}{2}$ hours to cycle the 50 km.

Peter started to cycle 5 minutes after James started to cycle.
Peter caught up with James when they had both cycled 15 km.

James and Peter both cycled at constant speeds. Work out Peter's speed.

..... km/h

(Total for question = 5 marks)

Q8. NON-CALCULATOR

On Monday, Tarek travelled by train from Manchester to London. Tarek's train left Manchester at 08 35
It got to London at 11 05. The train travelled at an average speed of 110 miles per hour.

On Wednesday, Gill travelled by train from Manchester to London. Gill's train also left at 08 35 but was diverted. The train had to travel an extra 37 miles. The train got to London at 11 35

Work out the difference between the average speed of Tarek's train and the average speed of Gill's train.

..... miles per hour

(Total for question = 4 marks)

Q9. NON-CALCULATOR

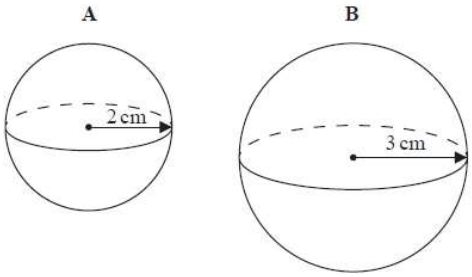
$$\text{Pressure} = \frac{\text{force}}{\text{area}}$$

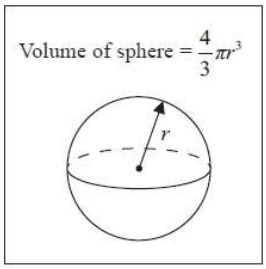
Find the pressure exerted by a force of 900 newtons on an area of 60cm^2.
Give your answer in newtons/m^2.

..... newtons/m^2

(Total for question = 2 marks)

Q10. NON-CALCULATOR





Here are two solid spheres, **A** and **B**.

Sphere **A** is made of gold. Sphere **B** is made of silver.

Sphere **A** has radius 2 cm. Sphere **B** has radius 3 cm.

Gold has a density of 19 000 kg/m^3. Silver has a density of 10 000 kg/m^3

Which sphere has the greater mass? You must show how you get your answer.

(Total for question = 4 marks)