

COMPOUND MEASURES

Pearson Edexcel – Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Higher Tier

1.

13 Liquid **A** and liquid **B** are mixed to make liquid **C**.

Liquid **A** has a density of 70 kg/m^3

Liquid **A** has a mass of 1400 kg

Liquid **B** has a density of 280 kg/m^3

Liquid **B** has a volume of 30 m^3

Work out the density of liquid **C**.

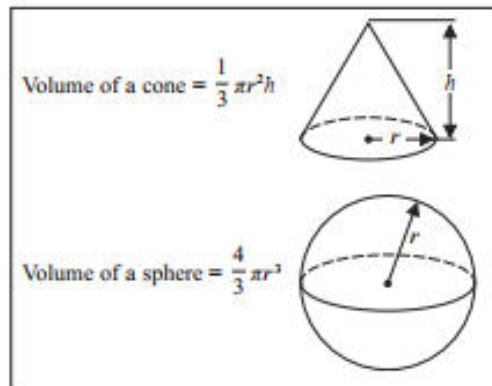
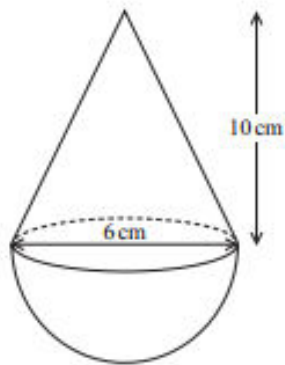
..... kg/m^3

(Total for Question 13 is 3 marks)

Pearson Edexcel - Tuesday 21 May 2019 - Paper 1 (Non-Calculator) Higher Tier

2.

- 15 The diagram shows a solid shape.
The shape is a cone on top of a hemisphere.



The height of the cone is 10 cm.
The base of the cone has a diameter of 6 cm.
The hemisphere has a diameter of 6 cm.

The total volume of the shape is $k\pi \text{ cm}^3$, where k is an integer.

Work out the value of k .

$k = \dots\dots\dots$

(Total for Question 15 is 4 marks)

- 13 The density of ethanol is 1.09 g/cm^3
The density of propylene is 0.97 g/cm^3

60 litres of ethanol are mixed with 128 litres of propylene to make 188 litres of antifreeze.

Work out the density of the antifreeze.
Give your answer correct to 2 decimal places.

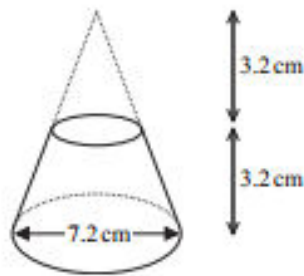
..... g/cm^3

(Total for Question 13 is 4 marks)

Pearson Edexcel - Thursday 8 November 2018 - Paper 2 (Calculator) Higher Tier

4.

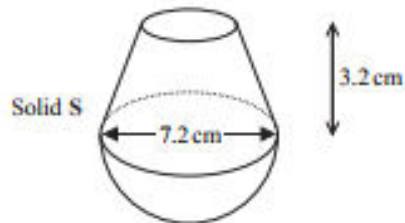
20 Here is a frustum of a cone.



Volume of sphere = $\frac{4}{3}\pi r^3$	
Volume of cone = $\frac{1}{3}\pi r^2 h$	

The diagram shows that the frustum is made by removing a cone with height 3.2 cm from a solid cone with height 6.4 cm and base diameter 7.2 cm.

The frustum is joined to a solid hemisphere of diameter 7.2 cm to form the solid S shown below.



The density of the frustum is 2.4 g/cm^3
 The density of the hemisphere is 4.8 g/cm^3

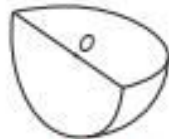
Calculate the average density of solid S.

.....g/cm³

(Total for Question 20 is 5 marks)

5.

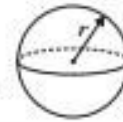
19 Shape S is one quarter of a solid sphere, centre O .



Shape S

$$\text{Volume of sphere} = \frac{4}{3}\pi r^3$$

$$\text{Surface area of sphere} = 4\pi r^2$$



The volume of S is $576r \text{ cm}^3$

Find the surface area of S.

Give your answer correct to 3 significant figures.

You must show your working.

..... cm^2

(Total for Question 19 is 5 marks)

Pearson Edexcel - Tuesday 13 June 2017 - Paper 3 (Calculator) Higher Tier

6.

6 The density of apple juice is 1.05 grams per cm^3 .

The density of fruit syrup is 1.4 grams per cm^3 .

The density of carbonated water is 0.99 grams per cm^3 .

25 cm^3 of apple juice are mixed with 15 cm^3 of fruit syrup and
280 cm^3 of carbonated water to make a drink with a volume of 320 cm^3 .

Work out the density of the drink.

Give your answer correct to 2 decimal places.

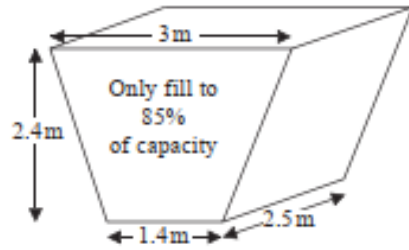
.....g/ cm^3

(Total for Question 6 is 4 marks)

Pearson Edexcel - Specimen Papers Set 2 - Paper 3 (Calculator) Higher Tier

7.

- 8 The diagram shows an oil tank in the shape of a prism.
The cross section of the prism is a trapezium.



The tank is empty.

Oil flows into the tank.

After one minute there are 300 litres of oil in the tank.

Assume that oil continues to flow into the tank at this rate.

- (a) Work out how many **more** minutes it takes for the tank to be 85% full of oil.
(1 m³ = 1000 litres)

..... minutes
(5)

The assumption about the rate of flow of the oil could be wrong.

- (b) Explain how this could affect your answer to part (a).

.....
.....
(1)

(Total for Question 8 is 6 marks)

12 Zahra mixes 150 g of metal A and 150 g of metal B to make 300 g of an alloy.

Metal A has a density of 19.3 g/cm³.

Metal B has a density of 8.9 g/cm³.

Work out the density of the alloy.

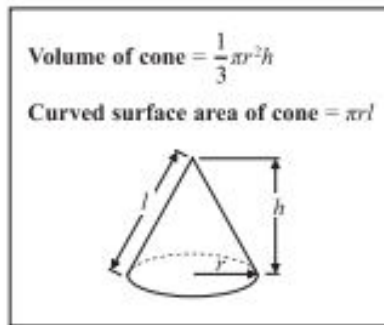
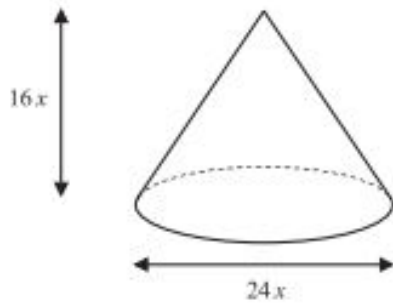
..... g/cm³

(Total for Question 12 is 4 marks)

Pearson Edexcel - Specimen Papers Set 1 - Paper 3 (Calculator) Higher Tier

9.

17 The diagram shows a solid cone.



The diameter of the base of the cone is $24x$ cm.
The height of the cone is $16x$ cm.

The curved surface area of the cone is 2160π cm².
The volume of the cone is $V\pi$ cm³, where V is an integer.

Find the value of V .

(Total for Question 17 is 5 marks)

14 The diagram shows a metal bar in the shape of a prism.

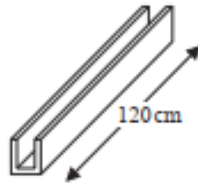


Diagram NOT
accurately drawn

The length of the metal bar is 120 cm.
The cross section of the metal bar is shown below.

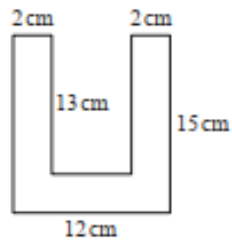


Diagram NOT
accurately drawn

All corners are right angles.

The metal bar is made from steel with density 8 g/cm^3 .

Sean has a trolley.

The trolley can carry a maximum mass of 250 kg.

How many metal bars can the trolley carry at the same time?

You must show your working.

(Total for Question 14 is 5 marks)

19 The diagram shows a solid shape.

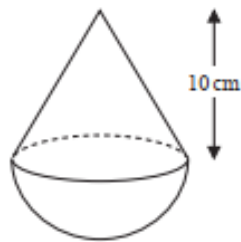


Diagram NOT
accurately drawn

The solid shape is made from a hemisphere and a cone.
The radius of the hemisphere is equal to the radius of the base of the cone.

The cone has a height of 10 cm.
The volume of the cone is $270\pi \text{ cm}^3$.

Work out the total volume of the solid shape.
Give your answer in terms of π .

..... cm^3

(Total for Question 19 is 5 marks)

- 16 Liquid A has a density of 0.7 g/cm^3 .
Liquid B has a density of 1.6 g/cm^3 .

140 g of liquid A and 128 g of liquid B are mixed to make liquid C.

Work out the density of liquid C.

..... g/cm^3

(Total for Question 16 is 4 marks)

Pearson Edexcel - Wednesday 5 November 2014 - Paper 1 (Non-Calculator) Higher Tier

13.

20 The diagram shows a solid shape.

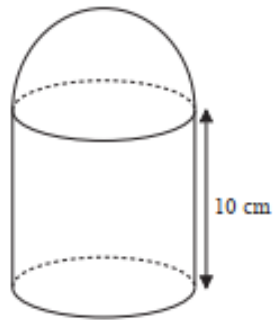


Diagram **NOT**
accurately drawn

The solid shape is made from a cylinder and a hemisphere.
The radius of the cylinder is equal to the radius of the hemisphere.

The cylinder has a height of 10 cm.
The curved surface area of the hemisphere is 32π cm².

Work out the total surface area of the solid shape.
Give your answer in terms of π .

..... cm²

(Total for Question 20 is 5 marks)

AQA GCSE – Tuesday 21 May 2019 – Paper 1 (Non - Calculator) Higher Tier

14.

- 26 The turning point of the graph $y = (x + a)^2 + b$ has x -coordinate 3. (3, 1) is another point on the graph.

Work out the y -coordinate of the turning point.

Answer _____