

Compound Measures - Worksheet

Skill

Group A - Speed, distance, time

Determine the value of each measure required:

1) Work out the speed when:	2) Work out the speed when:	3) Work out the speed when:
Distance is $50 m$	Distance is $100 m$	Distance is $450 m$
Time is 2 <i>seconds</i>	Time is 5 <i>seconds</i>	Time is 30 <i>seconds</i>

Work out the distance	Work out the distance	Work out the distance
when:	when:	when:
Speed is $50 m/s$	Speed is $30 m/s$	Speed is $35 m/s$
Time is 5 <i>seconds</i>	Time is 7 <i>seconds</i>	Time is 12 seconds
7) Work out the time when:	8) Work out the time when:	9) Work out the time when:

Distance is 600 mSpeed is 10 m/s 8) Work out the time when: Distance is 800 mSpeed is 20 m/s **9)** Work out the time when: Distance is 1200 mSpeed is 40 m/s

Group B - Mass, density, volume

Determine the value of each measure required:

1) Work out the mass when:	2) Work out the mass when:	3) Work out the mass when:
Density is $3 g/cm^3$	Density is $4 g/cm^3$	Density is $6 g/cm^3$
Volume is 25 cm^3	Volume is $35 cm^3$	Volume is 55 cm^3
4) Work out the density when:	5) Work out the density when:	6) Work out the density when:
Mass is 30 g	Mass is $50 \ g$	Mass is $120 \ g$
Volume is $10 cm^3$	Volume is 20 cm ³	Volume is 30 cm ³
7) Work out the volume when:	8) Work out the volume when:	9) Work out the volume when:
Mass is $30 g$	Mass is $300 g$	Mass is 900 <i>g</i>
Density is $5 g/cm^3$	Density is $15 g/cm^3$	Density is $30 g/cm^3$

1



Compound Measures - Worksheet

Group C - Pressure, force, area

Determine the value of each measure required:

1) Work out the pressure when:	2) Work out the pressure when:	3) Work out the pressure when:
Force is 12 N	Force is 30 N	Force is 36 N
Area is 2 m^2	Area is $3 m^2$	Area is $4 m^2$
4) Work out the force when:	5) Work out the force when:	6) Work out the force when:
Pressure is $20 N/m^2$	Pressure is $30 N/m^2$	Pressure is $45 N/m^2$
Area is $4 m^2$	Area is $6m^2$	Area is $9 m^2$
7) Work out the area when:	8) Work out the area when:	9) Work out the area when:
Force is 30 N	Force is 600 N	Force is 1200 <i>N</i>
Pressure is $10 N/m^2$	Pressure is $20 N/m^2$	Pressure is $30 N/m^2$



Compound Measures - Worksheet

Applied

3)

- A car travels at 150 km for $2\frac{1}{2}$ hours. What is the speed of the car? 1) (a)
 - A bus travels at 30 km/h for 75 minutes. How far is the journey? (b)
- 2) What is the area of this rectangle? (a)



The substance the cuboid is made from has a density of $2900 kg/m^3$. (b) Calculate its mass in kg.

Give your answer correct to 3 significant figures.



Compound Measures - Exam Questions

1) Sara jogs for 20 mins at a speed of 12 km/h. Work out the distance Sue jogs.

>km (3 marks)

3) (a) Jai has a metal bar. It is a cuboid with dimensions 120 mm by 30 mm by 40 mm:



Calculate the volume of the metal bar. Give your answer in cm^3 .





Compound Measures - Exam Questions

(b) The metal has a mass of 1120 g. Here is a table of densities of metals.

Metal	Density (g/cm ³)
Steel	7.8
Lead	11.3
Gold	19.3

Jai thinks the bar is made from gold. Is he correct?

(3) (5 marks)

3) A force of 480 N is applied to an area. The pressure exerted is $16 N/m^2$. Calculate the area.

.....m² (2 marks)



Compound Measures - Exam Questions

4) (a) Ben drives 64 km from Town A to Town B at an average speed of 80 km/h.

How long did the journey take?

(2)

(b) Ben then drives 35 km from Town B to Town C in 30 minutes.

Calculate the average speed for his total drive from Town A to Town C in kilometres per hour.

Give your answer to 3 significant figures

(2) (4 marks)



	Question	Answer
	Skill Questions	
Group A	Determine the value of each measure required: 1) Work out the speed when: Distance is 50 <i>m</i> , Time is 2 <i>seconds</i>	1) $50 \div 2 = 25 m/s$
	2) Work out the speed when: Distance is 100 <i>m</i> , Time is 5 <i>seconds</i>	2) 100 ÷ 5 = 20 m/s
	3) Work out the speed when: Distance is 450 <i>m</i> , Time is 30 <i>seconds</i>	3) $450 \div 30 = 15 m/s$
	4) Work out the distance when: Speed is $50 m/s$, Time is $5 seconds$	4) $50 \times 5 = 250 m$
	5) Work out the distance when: Speed is $30 m/s$, Time is 7 <i>seconds</i>	5) $30 \times 7 = 210 m$
	6) Work out the distance when: Speed is 35 <i>m/s</i> , Time is 12 <i>seconds</i>	6) $35 \times 12 = 420 m$
	7) Work out the time when: Distance is 600 <i>m</i> , Speed is 10 <i>m/s</i>	7) $600 \div 10 = 60 s$
	8) Work out the time when: Distance is 800 <i>m</i> , Speed is 20 <i>m/s</i>	8) $800 \div 20 = 40 s$
	9) Work out the time when: Distance is 1200 <i>m</i> , Speed is 40 <i>m/s</i>	9) $1200 \div 40 = 30 s$

Group B	Determine the value of each measure required: 1) Work out the mass when:	1) $3 \times 25 = 75 g$
	 Density is 3 g/cm[°], Volume is 25 cm[°] 2) Work out the mass when: 	2) $4 \times 35 = 140 g$
	Density is $4 g/cm^3$, Volume is $35 cm^3$	3) $6 \times 55 = 330 a$
	Density is $6 g/cm^3$, Volume is $55 cm^3$	3, 0 × 33 – 330 g
	4) Work out the density when: Mass is 30 g , Volume is 10 cm^3	4) $30 \div 10 = 3 g/cm^3$
	5) Work out the density when: Mass is 50 g , Volume is 20 cm^3	5) $50 \div 20 = 2.5 \ g/cm^3$
	6) Work out the density when: Mass is 120 g , Volume is 30 cm^3	6) $120 \div 30 = 4 g/cm^3$
	7) Work out the volume when: Mass is 30 g , Density is 5 g/cm^3	7) $30 \div 5 = 6 \ cm^3$
	8) Work out the volume when: Mass is 300 g, Density is $15 g/cm^3$	8) $300 \div 15 = 20 \ cm^3$
	9) Work out the volume when: Mass is 900 g, Density is 30 g/cm^3	9) 900 ÷ 30 = 30 cm^3

Group C	Determine the value of each measure required: 1) Work out the pressure when: Force is 12 N, Area is 2 m^2	1) $12 \div 2 = 6 N/m^2$
	2) Work out the pressure when: Force is 30 <i>N</i> , Area is 3 m^2	2) $30 \div 3 = 10 M/m^2$
	3) Work out the pressure when: Force is 36 <i>N</i> , Area is $4 m^2$	3) $36 \div 4 = 9 N/m^2$
	4) Work out the force when: Pressure is $20 N/m^2$, Area is $4 m^2$	4) $20 \times 4 = 80 N$
	5) Work out the force when: Pressure is $30 N/m^2$, Area is $6 m^2$	5) $30 \times 6 = 180 N$
	6) Work out the force when: Pressure is $45 N/m^2$, Area is $9 m^2$	6) $45 \times 9 = 405 N$
	7) Work out the area when: Force is 30 <i>N</i> , Pressure is $10 N/m^2$	7) $30 \div 10 = 3 m^2$
	8) Work out the area when: Force is 600 <i>N</i> , Pressure is $20 N/m^2$	8) $600 \div 20 = 30 m^2$
	9) Work out the area when: Force is 1200 <i>N</i> , Pressure is $30 N/m^2$	9) $1200 \div 30 = 40 m^2$



	Question	Answer
	Applied Questions	
1)	a) A car travels at 150 km for $2\frac{1}{2}$ hours. What is the speed of the car?	a) $150 \div 2.5 = 60 km/h$
	b) A bus travels at 30 km/h for 75 minutes.How far is the journey?	b) $30 \times 1.25 = 37.5 km$
2)	a) What is the area of this rectangle? $15m$ $6m$ Not to scale	a) $Area = 15 \times 6 = 90 m^2$
	b) A force of 200 <i>N</i> . Calculate the pressure. Give your answer to 3 significant figures.	b) Pressure = $200 \div 90$ = 2.22222 = 2.22 N/m ²
3)	a) What is the volume of this cuboid? 3m 2m Not to scale 8m	a) Volume = $8 \times 2 \times 3 = 48 m^3$
	 b) The substance the cuboid is made from has a density of 2900 kg/m³. Calculate its mass in kg. Give your answer correct to 3 significant figures. 	b) $Mass = 2900 \times 48$ = 139 200 = 139 000 kg



Compound Measures - Mark Scheme

		Question		Ar	nswer	
		Exam Questions				
1)		Sara jogs for 20 mi 12 <i>km/h</i> . Work out the distan	ns at a speed of ace Sue jogs.		$20 \text{ minutes} = \frac{1}{3} \text{ hour}$ $= 12 \times \frac{1}{3}$ $= 4 \text{ km}$	(1)(1)(1)
2)	(a)	Jai has a metal bar. It is a cuboid with o 120 mm by 30 mm 120mm Calculate the volun Give your answer in	dimensions n by 40 mm. 40mm 30mm Not to scale ne of the metal bar. n cm^{3} .	(a)	$120 mm = 12 cm \text{ or}$ $40 mm = 4 cm \text{ or}$ $30 mm = 3 cm$ $Volume = 12 \times 4 \times 3$ $= 144 cm^{3}$	(1) (1) (1)
	(b)	The metal bar has a Here is a table of do Metal Steel Lead Gold Jai thinks the bar is Is he correct?	mass of 1120 g. ensities of metals. Density (g/cm ³) 7.8 11.3 19.3 made from gold.		1120 ÷ 144 = 7.777 g/cm^3 No - the metal bar is not made from gold.	(1)(1)(1)
3)		A force of 480 <i>N</i> i area. The pressure exerter Calculate the area.	s applied to an ed is $16 N/M^2$.		$Area = 480 \div 16$ $= 30 m^2$	(1) (1)



Compound Measures - Mark Scheme

4)	(a)	Ben drives 64 km from Town A to Town B at an average speed of 80 km/h . How long did the journey take?	 (a) 64 ÷ 80 0.8 hours or 48 minutes 	(1) (1)
	(b)	Ben then drives 35 <i>km</i> from Town B to Town C in 30 minutes. Calculate the average speed for his total drive from Town A to Town C in kilometres per hour. Give your answer to 3 significant figures	(b) $\frac{64+35}{0.8+0.5} = \frac{99}{1.3}$ = 76.153 = 76.2 km/h	(1) (1)

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