eClassroom

GCSE Mathematics

Compound Measures

Worked Solutions

Pearson Edexcel GCSE & iGCSE Mathematics

Section A — Foundation — Worked Solutions

[Fluency] Question 1

D=S×T=60×2.5

∴ **150 miles**

[Fluency] Question 2

S=D÷T=150÷2.5

∴ **60 km/h**

[Fluency] Question 3

T=D÷S=240÷48=5 hours

∴ **5 hours exactly**

[Fluency] Question 4

D=M÷V=360÷45

∴ **8 g/cm³**

[Fluency] Question 5

M=D×V=8.9×25

∴ **222.5 g**

[Reasoning] Question 6

Time 1: 60/80=0.75h; Time 2: 40/60=0.667h; Total time=1.417h

Total dist=100km; Avg speed=100/1.417

∴ **70.6 km/h**

[Reasoning] Question 7

P=F/A=500/0.25

∴ **2000 Pa**

[Reasoning] Question 8

Mass: $3\times8.9+2\times7.1=26.7+14.2=40.9\text{g}$

Volume$=5\text{cm}^3$

Density$=40.9/5$

$\therefore$ **$8.18\ \text{g/cm}^3$**

[Problem Solving] Question 9

Stage 1: $40\times0.5=20$ miles

Stage 2: $56\times0.75=42$ miles

Total

$\therefore$ **62 miles**

[Problem Solving] Question 10

$F=P\times A=80000\times0.5$

$\therefore$ **40 000 N**

Section B — Higher — Worked Solutions

[Fluency] Question 1

$90 \times \frac{1000}{3600}$

∴ **25 m/s**

[Fluency] Question 2

Total dist=500m; Total time=23s; Speed=500/23

∴ **21.7 m/s**

[Fluency] Question 3

V=M/D=540/2.7

∴ **200 cm³**

[Reasoning] Question 4

$V_A = \frac{m}{3},\ V_B = \frac{m}{8}$

$V_A : V_B = \frac{m}{3} : \frac{m}{8} = 8 : 3$

∴ **8:3**

[Reasoning] Question 5

(a) Speed=gradient=200/5=40 m/s

(b) Horizontal line: distance not changing → object is stationary (at rest).

∴ **(a) 40 m/s (b) Object is stationary**

[Reasoning] Question 6

F=60×9.8=588N

P=588/0.00015=3920000Pa

∴

[Problem Solving] Question 7

$V = \frac{4}{3}\pi(4)^3 = \frac{256\pi}{3} \approx 268.08\ \text{cm}^3$

m=268.08×7.87

∴ **2109.8 g**

[Problem Solving] Question 8

D1=70×2.25=157.5 miles; D2=20×0.5=10 miles; Total=167.5 miles

Total time=2.75h; Avg speed=167.5/2.75

∴ **60.9 mph**

[Problem Solving] Question 9

P=ρgh=1025×9.8×50=502250Pa

∴ **502.25 kPa**

[Problem Solving] Question 10

Vol A=200/0.8=250ml; Vol B=300/1.2=250ml; Total vol=500ml

Total mass=500g; Density=500/500

∴ **1.0 g/ml**