

# Compound Measures 3

## Exercise 22.1A Page 467

$$\begin{aligned} 7) \quad \text{Volume} &= 22.50 \text{ mm} \times 22.50 \text{ mm} \times 3.15 \text{ mm} \\ &= 2.25 \text{ cm} \times 2.25 \text{ cm} \times 0.315 \text{ cm} \\ &= 1.5946875 \text{ cm}^3 \\ \text{Mass} &= 9.50 \text{ g} \end{aligned}$$

$$a) \quad \text{Density} = \frac{\text{Mass}}{\text{Volume}} = \frac{9.50}{1.5946875} = 5.96 \text{ g/cm}^3$$

$$b) \quad \text{Number of blocks} = \frac{1000}{9.5} = 105.26$$

so 105 blocks

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$$\begin{aligned} 8) \quad a) \quad \text{mass } 31.5 \text{ g} \quad \text{Vol} &= 3 \text{ cm}^3 \\ \text{density} &= \frac{\text{mass}}{\text{Vol}} = \frac{31.5}{3} = 10.5 \text{ g/cm}^3 \\ 1,000,000 \text{ cm}^3 &= 1 \text{ m}^3 & \text{so } 10,500,000 \text{ g/m}^3 \\ 1000 \text{ g} &= 1 \text{ kg} & \text{so } 10,500 \text{ kg/m}^3 \end{aligned}$$

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$$b) \quad \text{density} = \frac{\text{mass}}{\text{Vol}} = \frac{18}{4} = 4.5 \text{ g/cm}^3$$

$= 4,500 \text{ kg/m}^3$

$$c) \quad \text{density} = \frac{1.08}{0.4} = 2.7 \text{ g/cm}^3 = 2700 \text{ kg/m}^3$$

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9) £340 for 40 hrs

$$\text{hourly pay} = \frac{340}{40} = \text{£}8.50$$

$$\text{overtime rate} = \text{£}8.50 \times 1.5 = \text{£}12.75$$

a) 7 hrs at £12.75 = £89.25

b) Earned £531.25

$$\text{overtime pay} = \text{£}531.25 - \text{£}340 = \text{£}191.25$$

$$\text{hrs overtime} = \frac{\text{£}191.25}{\text{£}12.75} = 15 \text{ hrs}$$

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10) £33.60 for 420 km

$$= \frac{\text{£}33.60}{420} \text{ per km} = \text{£}0.08 \text{ per km}$$

$$\text{Double rate} = \text{£}0.16 \text{ per km}$$

Double rate for 264 km

$$= \text{£}0.16 \times 264 = \text{£}42.24$$

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11) Distance = 8 + 6 + 10 = 24 km

$$\text{Avg speed} = \frac{\text{Dist}}{\text{Time}} = 6.2 \text{ km/h}$$

$$\text{Time} = \frac{\text{Dist}}{\text{Speed}} = \frac{24}{6.2} = 3.870967742 \text{ hrs}$$