

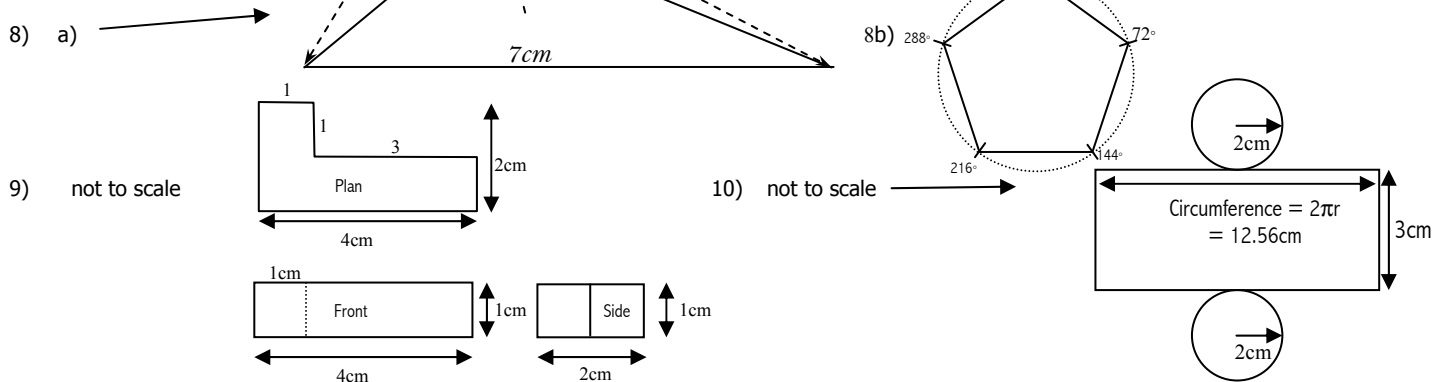
ANSWERS to the DIAGNOSTIC TEST - Preliminary Course (Intermediate Students)

Number & Algebra

- 1) a) 0.098, 0.7, 0.78, 0.789.
 b) -6, -5, -1, 2, 9.
- 2) a) i) 12700 ii) 1.27
 b) i) 560880
 ii) 56.088
- 3) a) 123460 b) 123500 c) 123000
- 4) $4969 \div 51 \approx 5000 \div 50 = 100$
- 5) a) $98 \times 2 + 2 = 198$ b) 9800
- 6) a) $\text{£}55 \times 1.25 = \text{£}68.75$ b) $\text{£}100 \div 1.25 = \text{£}80$
- 7) a) jar 1: 240g $\div \text{£}3 = 80\text{g per } \text{£}$
 jar 2: 486g $\div \text{£}6 = 81\text{g per } \text{£}$: Best Value
 jar 3: 500g $\div \text{£}6.45 = 77.5\dots\text{g per } \text{£}$: Worst Value
 b) $\text{£}16.80 \div 16 = \text{£}1.05$, $\text{£}1.05 \times 12 = \text{£}12.60$
- 8) a) 12
 b) $1 + 4 \div (2 + 2) = 2$
- 9) a) i) 6 ii) 27 iii) 139 iv) 32 b) 2^4
- 10) a) $5 \div 8 = 0.625$ b) $\frac{6}{100}$ or $\frac{3}{50}$ Extra c) $\frac{3}{4}$ & $\frac{19}{20}$
- 11) a) $5 \div 8 \times 100 = 62.5\%$ b) $\frac{8}{100}$ or $\frac{4}{50}$ or $\frac{2}{25}$
- 12) $\frac{3}{8}$
- 13) a) $\frac{45}{100} \times 120 = \text{£}54$ b) $\frac{4}{11} \times 4 = 1\frac{5}{11}$ cm
- 14) a) $\frac{1}{5}, \frac{1}{4}, \frac{3}{7}, \frac{4}{9}$ b) $\frac{15}{90}$ or other correct answer e.g. $\frac{3}{18}$
- 15) a) $-f + 6$ or $6 - f$ b) $9abc$
- 16) a) $3(-2) + 3 = -3$ b) $2(3)^2 = 18$
- 17) a) $12x$ b) $10, 2n + 2$
- 18) a) $A(-2, 3), B(3, 0), C(-3, -2)$ b) $(0, -1)$

Shape & Space

- 1) a) 65° (F-angle)
 b) $180^\circ - 65^\circ = 115^\circ$
 c) 55° (Z-angle)
 d) 55° (F-angle)
 e) $180^\circ - 65^\circ - 55^\circ = 60^\circ$
- 2) Rhombus and parallelogram
- 3) a) $1\frac{3}{4}$ pints
 b) 8 km
- 4) a) i) 2 ii) 5 b) 2, 5
- 8) a)
- 5) $A = \frac{1}{2}(2+1)3 = 4.5\text{cm}^2$ $B = (1 \times 3) + (\frac{1}{2} \times 3 \times 1) = 4.5\text{cm}^2$
- 6) a) $C = 43.982\dots\text{cm}$ or 44.0cm 3sf
 or using $\pi = 3.142, 43.988\text{cm}$ or 44.0cm 3sf
 b) $A = 153.93\dots\text{cm}^2$ or 154cm^2 3sf
 or using $\pi = 3.142, 153.95\text{cm}$ (first 5 digits) or 154cm^2 3sf
 (or 153.958cm exactly)
- 7) a) $(3 \times 180) - (95 + 100 + 105 + 110) = 540^\circ - 410^\circ = 130^\circ$
 b) $360^\circ \div 10 = 36^\circ$

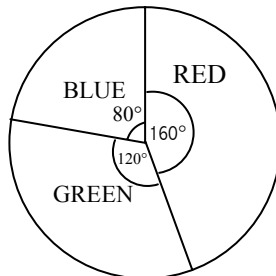


- 11) $A = D$, Z-angles; $B = E$, Z-angles; $C + D + E = 180^\circ$ because angles on a straight line sum to 180° .
 Replacing A for D and B for E gives, $A + B + C = 180^\circ$ as required.

Handling Data

1. a)

Car Colour	Frequency	Angle in Pie Chart
Red	20	$\times 8 = 160^\circ$
Green	15	$\times 8 = 120^\circ$
Blue	10	$\times 8 = 80^\circ$
Total	45	$\times 8 = 360^\circ$



2)

10	1	1	1	2	2
15	0	4			
20	1	3			
25	0	2	2	4	4

Key 10 | 1 means $10 + 1 = 11$

Median = $\frac{21+23}{2} = 22$

- 3) a) i) $\frac{1}{6}$ ii) $\frac{5}{6}$ b) $1 - (0.05 + 0.1 + 0.15) = 1 - 0.3 = 0.7$