

Non-Calculator Diagnostic Assessment – Mark Scheme

Question 1:

$$\frac{30 \times 20}{4 \times 5} = \frac{600}{20} = 30$$

Question 2:

18°C

Question 3:

$$\frac{9}{12} + \frac{4}{12} = \frac{13}{12} = 1\frac{1}{12}$$

Question 4:

$$\frac{21}{4} - \frac{19}{8} =$$

$$\frac{42}{8} - \frac{19}{8} =$$

$$\frac{42}{8} - \frac{19}{8} = \frac{23}{8} = 2\frac{7}{8}$$

Question 5:

$$\frac{30}{150} = \frac{3}{15} = \frac{1}{5}$$

Question 6:

$$6 \times 9 \times 9 = 486$$

Question 7:

$$28 \times 3 + 60 = 144$$

Question 8:

6000

Question 9:

3 ² calculated before 2 × 3 and 2 × their 9 calculated before 25 – 2	M1	implied by 25 – 18
7	A1	

Question 10:

250.0485

Question 11:

4.165

Question 12:

£20 = 2 parts so 1 part = £10

3 parts altogether = £30

Question 13a:

48 ÷ 4 or 12	M1	
their 12 × 500 or 6000	M1	their 12 can be any integer > 1
their 6000 ÷ 1000 or 6	M1dep	dep on second mark
their 6 – 1.4 or 4.6	M1dep	
5	A1	
Additional Guidance		
48 × 500 ÷ 1000 = 24, 24 – 1.4 = 22.6, answer 23		M0M1M1M1A0
4 × 500 ÷ 1000 = 2, 2 – 1.4 = 0.6, answer 1		M0M1M1M1A0
Answer only 23 or 1		0

Question 13b:

Alternative method 1		
60 : 140 : 40	M1	oe ratio 6 : 14 : 4 or 3 : 7 : 2
48 ÷ (60 + 140 + 40) or 48 ÷ 240 or 0.2	M1dep	oe 48 ÷ (3 + 7 + 2) or 48 ÷ 12 or 4
their 0.2 × 60 and their 0.2 × 140 and their 0.2 × 40	M1dep	oe their 4 × 3 and their 4 × 7 and their 4 × 2 or correct method to work out two values and subtracts them from 48 to find the third
12 strawberry and 28 vanilla and 8 mint	A1	
Alternative method 2		
240 ÷ 48 or 5	M1	
60 ÷ their 5 or 12 (strawberry) or 140 ÷ their 5 or 28 (vanilla) or 40 ÷ their 5 or 8 (mint)	M1dep	
60 ÷ their 5 or 12 (strawberry) and 140 ÷ their 5 or 28 (vanilla) and 40 ÷ their 5 or 8 (mint)	M1dep	
12 strawberry and 28 vanilla and 8 mint	A1	oe eg works out two values and subtracts them from 48 to find the third

Alternative method 3		
$\frac{60}{60+140+40}$ or $\frac{60}{240}$ and $\frac{140}{60+140+40}$ or $\frac{140}{240}$ and $\frac{40}{60+140+40}$ or $\frac{40}{240}$	M1	oe eg $\frac{1}{4}$ and $\frac{7}{12}$ and $\frac{1}{6}$
48 × their $\frac{1}{4}$ or 12 (strawberry) or 48 × their $\frac{7}{12}$ or 28 (vanilla) or 48 × their $\frac{1}{6}$ or 8 (mint)	M1dep	
48 × their $\frac{1}{4}$ and 48 × their $\frac{7}{12}$ and 48 × their $\frac{1}{6}$	M1dep	oe eg works out two values and subtracts them from 48 to find the third
12 strawberry and 28 vanilla and 8 mint	A1	
Additional Guidance		
Correct value for any one flavour implies M1M1		

Question 14:

1% = 3 10% = 30

2% = 6 20% = 60

60 + 6 = 66

Or

300 ÷ 100 × 200 = 66

Question 15:

$$1\text{cm} = 30,000 \text{ cm}$$

$$1\text{cm} = 300\text{m}$$

$$1\text{cm} = 0.3\text{km} \quad 0.3 \times 5 = 1.5\text{km}$$

Question 16:

Alternative method 1		
50 ÷ 40 or 1.25 or 1 h 15 min	M1	
9 – 1 hour 15 – 30 minutes or 7.15	M1	
7.15 (am) and Yes	A1	
Alternative method 2		
50 ÷ 40 or 1.25 or 1 h 15 min	M1	
7.10 + 1 hour 15 minutes + 30 minutes	M1	
8.55 (am) and Yes	A1	
Alternative method 3		
Time from 7.10 to 9 – 30 minutes or 80 minutes or $1\frac{1}{3}$ hours	M1	
$50 \div \frac{\text{their } 80}{60}$ or $50 \div \text{their } 1\frac{1}{3}$ or 37.5	M1	
37.5 (mph) and Yes	A1	
Alternative method 4		
Time from 7.10 to 9 – 30 minutes or 80 minutes or $1\frac{1}{3}$ hours	M1	
$40 \times \frac{\text{their } 80}{60}$ or $40 \times \text{their } 1\frac{1}{3}$ or 53(.3...)	M1	
53(.3...) (miles) and Yes	A1	

Question 17:

$$\text{Area} = 8.75\text{m}^2$$

$$\text{Perimeter} = 12\text{m}$$

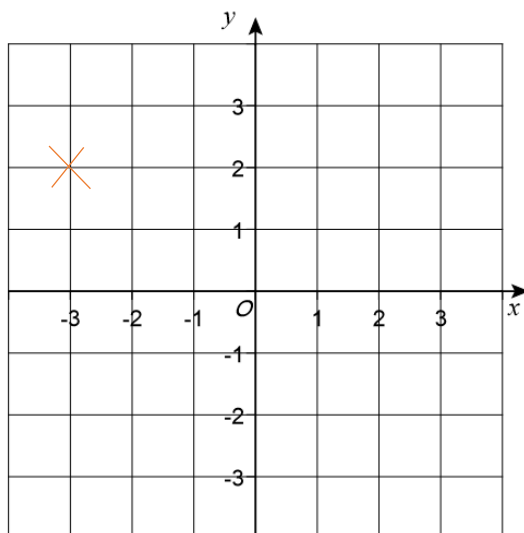
Question 18:

$$x = 10$$

Question 19:

0.6

Question 20:



Question 21:

- | |
|----|
| 13 |
| 14 |
| 17 |
| 18 |
| 20 |
| 22 |

$$17 + 18 = 35 \div 2 = 17.5$$

Question 22:

$$\underbrace{\frac{1}{6}}_{\text{1st roll}} \times \underbrace{\frac{1}{6}}_{\text{2nd roll}} = \frac{1}{36}$$

Question 23:

$180 - 2 \times 36$ or $180 - 72$	M1	
108	A1	

Question 24:

C

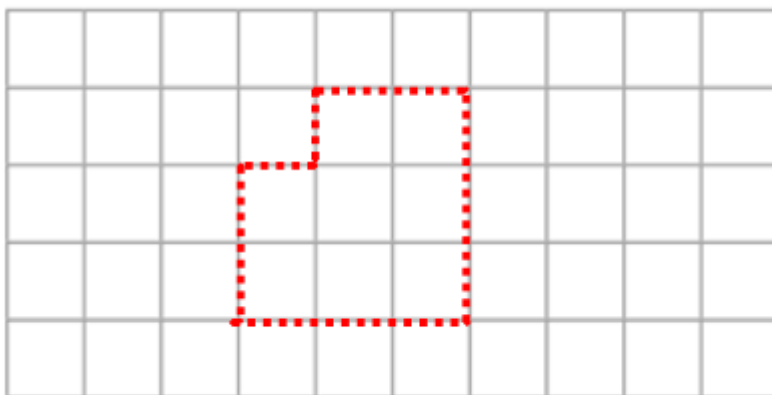
Question 25:

0.4, 0.415, 0.42, 0.469, 0,48

Question 26:

- a) €40
- b) £12

Question 27:



Question 28:

midpoint	f_x
2	8
6	11
10	40
14	14
	<u>128</u>

$$128 \div 20 = 6.4$$