



## GCSE Foundation 16

*Shape, space and measure*

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103 minutes



95 marks

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*Geometric reasoning*

<b>M1.</b>	(a) [6.6, 6.8] <i>If cm deleted accept [66 mm, 68 mm]</i>	<b>B1</b>	<b>[2]</b>
	(b) Cross halfway between C and D	<b>B1</b>	
<b>M2.</b>	(a) Scalene	<b>B1</b>	<b>[2]</b>
	(b) Obtuse	<b>B1</b>	
<b>M3.</b>	Correct net – all 6 faces <i>Accept outline of net</i> <i>Ignore tabs</i> <i>B2 for 5 correct faces</i> <i>B1 for four 4 × 2 rectangles in a correct position</i> <i>or two 2 × 2 squares in a correct position</i>	<b>B3</b>	<b>[3]</b>
<b>M4.</b>	(a) (0)55 ± 2°	<b>B1</b>	<b>[4]</b>
	(b) their 55 + 180	<b>A1 ft</b>	
	235 <i>SC1 If reflex angle is given in (a) eg 235,</i> <i>allow subtraction of 180 eg 235 – 180 = 55</i>		
	(c) Valid reason <i>eg 180 + 180 = 360 (so cannot be greater than 180)</i> <i>190 + 180 = 370 (impossible)</i> <i>max possible 360</i> <i>180 × 2 = 360</i>	<b>B1</b>	

**M5.** (a)  $360 - (145 + 136)$  or  $360 - 281$

oe  
*Brackets needed*

**M1**

79

**A1**

(b)  $360 - (2y + 3y)$  or  $5y$  seen

oe  
*Brackets needed or  $360 - 2y - 3y$*

**M1**

$360 - 5y$

*Ignore further working*

**A1**

**[4]**

**M6.** (a) (B and) E

**B1**

(A and) F

**B1**

(b) All 3 pairs identified

B and C    D and E    E and F

*B1 for two identified with none incorrect*

**B2**

(c) C and D shaded

**B1**

**[5]**

**M7.** (a)  $47 \pm 2$

**B1**

(b) An acute, an obtuse and a reflex angle with total  $360^\circ$

*B2 for three conditions met*

*B1 for one or two conditions met*

**B3**

**[4]**

**M8.** (a)  $80^\circ$  and  $20^\circ$

**B1**

$50^\circ$  and  $50^\circ$

**B1**

- (b)  $\angle BAD = 30^\circ$  or  
any angle in  $\triangle BCD = 60^\circ$

B1

$$\angle ABD = 30^\circ$$

B1

Isosceles because  $\angle BAD = \angle ABD$   
oe

B1

[5]

**M9.** 123

B1

Corresponding

*Do not accept F*  
*Accept complete alternative*  
*eg, alternate and vertically opposite*

B1

[2]

**M10.** (a) (i) 65

B1

(ii) 105

B1

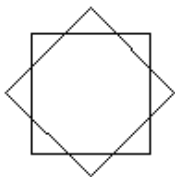
- (b)  $(55 + 115 =) 170$  **and**  
straight line needs 180

*B1 (55 + 115 =) 170 or*  
*straight line needs 180*  
oe

B2

[4]

**M11.**



*B2 For 6 or 7 or 8 regions shown*

*B1 For 4 or 5 regions shown*

**B3**

9

**B1**

**[4]**

**M12.** (a)  $60^\circ$

**B1**

(b)  $120^\circ$

**B1**

(c)  $120^\circ + 120^\circ + 60^\circ + 60^\circ = 360^\circ$

*oe B1 For  $120^\circ + 60^\circ = 180^\circ$*

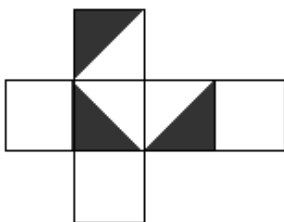
**B2**

Hence no gaps

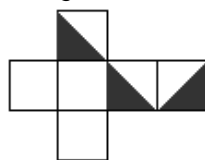
**B1dep**

**[5]**

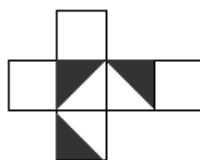
**M13.**



*oe eg,*



*or*



*B2 For 2 correct and 1 in correct position but in wrong orientation*

*B1 For 2 correct and 1 in wrong position*

**B3**

**[3]**

**M14.**  $12.5 \div 5$  or  $16.5 \div 7$   
 or  $2.5$  or  $2.3(\dots)$  or  $2.4$   
 oe

**M1**

$12.5 \div 5$  **and**  $16.5 \div 7$   
 or  $2.5$  **and**  $2.3(\dots)$  or  $2.4$   
 or their  $2.5 \times 7$  or  $17.5$   
 or their  $2.3(\dots)$  or  $2.4 \times 5$  or  $11.5 - 12$  inc

**M1**

No ticked **and**  
 $12.5 \div 5 \neq 16.5 \div 7$   
 or  $2.5 \neq 2.3(\dots)$  or  $2.4$   
 or  $17.5 \neq 16.5$   
 or  $11.5 - 12$  inc  $\neq 12.5$   
 oe eg, the lengths are different

**A1**

**[3]**

**M15.** (a)  $1.8$   
 Allow  $[1.5, 2.1]$

**M1**

(b) Their  $1.8 \times$  their  $4$   
 Allow  $[3, 5]$

**M1**

$7.2$   
 Allow  $[4.5, 10.5]$   
 ft Their  $(a) \times [3, 5]$

**A1ft**

**[3]**

**M16.** (a)  $B$  and  $F$

**B1**

(b) (i)  $A$

**B1**

(ii)  $2$   
 Accept  $\times 2$  but not  $1:2$  or  $2:1$

**B1**

	(c) Shape 9 squares wide or 3 squares high	B1	
	Shape 9 squares wide and 3 squares high	B1	
	Fully correct		
	<i>SC2 SF2 or SF4 fully correct</i>	B1	
			[6]
<b>M17.</b>	(a) <i>RQ</i>	B1	
	(b) <i>AB and / or DC</i>	B1	
			[2]
<b>M18.</b>	C, B, E		
	<i>Any two in order B1</i>		
	<i>ie, BEC, ECB, CEB, BCE</i>		
		B2	[2]
<b>M19.</b>	In order from top		
	Orange		
	Indigo		
	Yellow		
	Blue		
	Green		
	Violet		
	Red		
	<i>B2 Any 3 or 4 conditions met</i>		
	<i>B1 Any 2 conditions met</i>		
		B3	[3]
<b>M20.</b>	(a) $CBA = 80^\circ$	B1	
	$BAC = 20^\circ$	B1	

(b)  $RPS = 40^\circ$

B1

$QPR = 50^\circ$

$90 - \text{Their } RPS$

B1ft

$65^\circ$

$(180 - \text{Their } 50) \div 2$

B1ft

[5]

**M21.** A B and E

$-1 \text{ e } 000$

B2

[2]

**M22.** (a) E

B1

(b) C

B1

(c)  $180 - 115$

M1

$65$

A1

[4]

**M23.** (a) (i)  $78^\circ$  is acute

B1

$144^\circ$  is obtuse

B1

(a) (ii)  $360 - (78 + 144)$

oe  $360 - 78 - 144$ ;  $360 - 222$

M1

$138$

A1



(b) Angles should make total  $180^\circ$

B1

These make  $190^\circ$ , so no

*No. These don't*

B1

[6]

**M24.** 
$$\frac{(180 - 126)}{2}$$

M1

$x = 27$

A1

153

*126 + their x, 180 - their x*

B1 ft

[3]

**M25.** (a)  $(180 - 34) \div 2$

M1

73

A1

(b)  $180 - (38 + 34 \text{ their } x)$

M1

35

*Their 73 - 38*

A1

(c) No, because  $38 \neq 35$

*oe angles are not the same  
ft their answer to y but not 38*

B1

[5]

**M26.** (a) 6

**B1**

(b) Correct net

*B1 for 4 squares in a row or column B2 for correct net for open-topped cube (  $\pm 2$  mm) SC1 for correct net in correct scale factor*

**B3**

**[4]**

