Angles 2 · Angles and parallel lines

Exam-Style Set · Mark Scheme (Total 20 marks)

M = method mark · A = accuracy mark (depends on the M mark before it) · B = independent mark

Question 1 · [4 marks]

(a)	$x = 63$	**B1**
	Alternate angles are equal	**B1**
(b)	$y = 180 - 63 =$ **117**	**B1**
	Co-interior angles add up to 180° (or angles on a straight line add up to 180°)	**B1**

Note: Accept 'alt. angles'. Do not accept 'Z angles' or 'F angles': Cambridge mark schemes require the correct name.

Question 2 · [4 marks]

(a)	$5x - 18 = 3x + 24$ (corresponding angles are equal)	**M1**
	$2x = 42 \rightarrow$ **$x = 21$**	**A1**
(b)	$3(21) + 24 = 87°$	**M1**
	$y = 180 - 87 =$ **93** (angles on a straight line)	**A1**

Note: In (b), follow through from their x. Check: $5(21) - 18 = 87$ as well.

Question 3 · [3 marks]

(a)	$72 + 108 = 180$	**M1**
	Co-interior angles add up to 180°, so l is parallel to m	**A1**
(b)	If n were parallel to l, the corresponding angles would be equal, but $70° \neq 72°$	**B1**

Note: (a) needs both the calculation and the angle fact. Accept 'allied angles' for co-interior.

Question 4 · [4 marks]

(a)	$(2x + 10) + (x + 20) = 180$ (co-interior angles)	**M1**
	$3x + 30 = 180 \rightarrow$ **$x = 50$**	**A1**
(b)	Angle ABC $= 50 + 30 = 80°$	**M1**
	Angle BCD $= 180 - 80 =$ **100°** (co-interior angles)	**A1**

Note: Common error: treating angle DAB and angle ABC as co-interior. They are not, since AD and BC are not parallel.

Question 5 · [5 marks]

(a)	Draw a line through E parallel to AB. The angle between EB and this line = $(x + 15)°$ (alternate angles)	**M1**
	The angle between ED and this line = $(2x – 5)°$ (alternate angles)	**M1**
	Angle BED = $(x + 15) + (2x – 5) = 3x + 10$	**A1**
(b)	$3x + 10 = 112 \rightarrow \boldsymbol{x = 34}$	**B1**
(c)	$2(34) – 5 =$ **63°**	**B1**

Note: ‘Show that’: A1 needs the final line seen, with no errors. Both alternate-angle reasons are needed for full marks.