Topic Test 1 Mark Scheme

Angles - Higher

Q	Answer	Mark	Comments
1	**Alternative method 1**		
	180 – 72 – 72 or 36	M1	
	90 – their 36 or 54	M1dep	
	(180 – their 54) ÷ 2	M1dep	
	63	A1	
	Alternative method 2		
	$x + x + 72 + 72 + 90 = 360$	M1	
	$2x = 360 – 72 – 72 – 90$	M1dep	
	$2x = 126$ or (360 – 72 – 72 – 90) ÷ 2	M1dep	
	63	A1	
2	angle *ACB* = (180 – 48) ÷ 2 or angle *ACB* = 66 (base angles of isosceles triangle)	M1	
	angle *BCD* = angle *ABC* = 66 (alternate angles)	M1	
	angle *BCD* = angle *CDB* so triangle *BCD* is isosceles	A1	Must give full reasons throughout

Q	Answer	Mark	Comments
3(a)	angle *BEF* = 3*x*	M1	
	5*x* + their 3*x* + *x* = 180 or 9*x* = 180	M1dep	
	20	A1	
3(b)	**Alternative method 1**		
	angle *ABE* (or angle *FBC*) = (180 – 5 × their 20) ÷ 2 or 40	M1	
	angle *ABE* ≠ angle *DEG* (or *BEF*) and No or angle *CBF* ≠ angle *EFB* and No	A1ft	ft their angle from part (a)
	Alternative method 2		
	Assumes lines are parallel and angle *ABE* = 3 × their 20 or 60 and angle *CBF* = their 20	M1	
	angle *ABE* ≠ angle *CBF* and No	A1ft	ft their angle from part (a)
4	2*x* + *x* + 12 + 40 + *x* = 180 or 180 – 2*x* – (*x* + 12) = 40 + *x* or 180 – 40 – *x* = 2*x* + *x* + 12	M1	
	4*x* = 180 – 12 – 40 or 4*x* = 128 or *x* = 32	M1dep	
	180 – 40 – their 32 or 2 × their 32 + their 32 + 12	M1dep	
	108	A1	

Q	Answer	Mark	Comments
5	**Alternative method 1**		
	$3x + 15 = 4x$ (vertically opposite angles)	M1	
	$x = 15$	A1	
	angle ABE = 8 × their 15 or 120 and angle BED = 4 × their 15 or 60	M1	
	angle ABE + angle BED = 180 and are allied (or interior) angles, so AC and DF are parallel	A1	Must give full reasons throughout
	Alternative method 2		
	$3x + 15 = 4x$ (vertically opposite angles)	M1	
	$x = 15$	A1	
	angle FEM = 3 × their 15 + 15 or 60 and angle CBE = 180 – 8 × their 15 or 60	M1	
	angle FEM = angle CBE and are corresponding angles so AC and DF are parallel	A1	Must give full reasons throughout