(17) (a)

$$(\sin x - \cos x)^2$$

$$= \sin^2 x - 2\sin x \cos x + \cos^2 x$$

$$= \sin^2 x + \cos^2 x - 2\sin x \cos x$$

$$= 1 - \sin 2x$$

(b) $\int (\sin x - \cos x)^2 \, dx$

$$= \int (1 - \sin 2x) \, dx$$

$$= x + \frac{1}{2}\cos 2x + C$$

Question			Generic scheme	Illustrative scheme	Max mark
17.	(a)		•1 expand brackets •2 use double angle formula for sin •3 use trigonometric identity and express in required form	•1 $\sin^2 x - \sin x \cos x$ $-\sin x \cos x + \cos^2 x$ •2 $\ldots - \sin 2x \ldots$ •3 $1 - \sin 2x$	**3**
Notes:					
1. For correct answer with no working award 0/3.					
Commonly Observed Responses:					
Candidate A – incorrect notation $\sin x^2 - 2\sin x \cos x + \cos x^2$ •1 ✗ $1 - \sin 2x$ •2 ✓ •3 ✗					
	(b)		•4 link to (a) and integrate one term •5 complete integration	•4 eg $\int (1 - \sin 2x)\, dx = x \ldots$ •5 $x + \frac{1}{2}\cos 2x + c$	**2**
Notes:					
2. •4 and •5 can only be awarded if the integrand is of the form $p + q \sin rx$. 3. Where the statement for •3 appears with no relevant working, •4 and •5 are not available.					
Commonly Observed Responses:					

[END OF MARKING INSTRUCTIONS]