Q	Marking instructions	AO	Mark	Typical solution
14(a)	Explains why $\angle EFQ = A$ Must be a fully correct explanation with reasons which may include: Vertically opposite angles and right angle implies similar triangles.	AO2.4	E1	$\angle OQR = \angle FQE$ vertically opposite angles $\angle ORQ = \angle FEQ = 90°$ So $\angle EFQ = A$
	Deduces $\frac{PF}{EF} = \cos(A)$ **AND** $\frac{EF}{OF} = \sin(B)$ Must have at least stated or implied that $\angle EFQ = A$ through similarity	AO2.2a	R1	Since $\angle EFQ = A$ $\frac{PF}{EF} = \cos(A)$ And $\frac{EF}{OF} = \sin(B)$ in triangle OEF
14(b)	Completes proof	AO2.2a	B1	$\frac{DE}{\mathbf{OE}} \times \frac{\mathbf{OE}}{OF} + \frac{PF}{EF} \times \frac{EF}{OF}$ $= \mathbf{\sin A \cos B} + \cos A \sin B$
14(c)	Explains that the proof is based on right angled triangles which limits A and B to acute angles	AO2.3	E1	Since the proof is based on the diagram which uses right-angled triangles it is assumed that A and B are acute. Therefore, the proof only holds for acute angles.
14(d)	Substitutes $-B$ into identity for $\sin(A+B)$ to give $\sin(A-B)$	AO2.1	R1	$\sin(A-B) = \sin A\cos(-B) + \cos A \sin(-B)$
	Recalls at least one of the identities $\sin(-B) = -\sin(B)$ $\cos(-B) = \cos(B)$ Must be explicitly stated	AO1.2	B1	$\sin(-B) = -\sin(B)$ $\cos(-B) = \cos(B)$
	Deduces correct identity with no errors. This must be clearly deduced from a correct argument and not simply stated.	AO2.2a	R1	Hence $\sin(A-B) = \sin A \cos B - \cos A \sin B$
	Total		**7**	