| Question | Answer | Marks | Guidance |
|---|---|---|---|
| | correct $\tan(A+B)$ formula and obtain an equation in $\tan\alpha$ and $\tan\beta$ | **M1** | $\frac{\tan+\tan}{1\ \tan\tan}=2$ |
| | Substitute throughout for $\tan\alpha$ or for $\tan\beta$ | **M1** | $\frac{3\tan+\tan}{1\ 3\tan^2}=2$ |
| | Obtain $3\tan^2\beta+2\tan\beta-1=0$ or $\tan^2\alpha+2\tan\alpha-3=0$ | **A1** | OE e.g. $6\tan^2\beta+4\tan\beta-2=0$<br>or $\frac{2}{3}\tan^2\alpha+\frac{4}{3}\tan\alpha-2=0$ |
| | Solve a 3-term quadratic and find an angle | **M1** | |
| | Obtain answer $\alpha=45°$, $\beta=18.4°$ | **A1** | $\frac{\pi}{4}$ or 0.785, 0.322 |
| | Obtain answer $\alpha=108.4°$, $\beta=135°$ | **A1** | 1.89 , $\frac{3\pi}{4}$ or 2.36. Answer in radians, max. A1A0 or vice versa.<br>Ignore answers outside [0°, 180°] |
| | | **6** | SC: If A0A0 allow **SC B1** for both $\alpha$'s or both $\beta$'s |