| Question Number | Scheme | Marks | Notes |
|---|---|---|---|
| **5(a)** | $\tan\theta = \frac{2}{3}$ | M1 | Use trig to find a relevant angle $(56.3°, \quad 33.7°)$ |
| | Angle is $\theta + 90^{\circ} = 123.69°..$ | A1 | $124°$ or better (2.16 radians) |
| | | (2) | |
| | | | |
| **(b)** | $\mathbf{F}_1 + \mathbf{F}_2 = (a\mathbf{i} + 3\mathbf{j}) + (-4\mathbf{i} + b\mathbf{j})\ (= k(3\mathbf{i} - 2\mathbf{j}))$ | M1 | Resultant force seen or implied: must be the sum, NOT the difference<br>As a column vector or in **i** / **j** form |
| | Use direction to form equation in *a* and *b* | M1 | From ratio of scalars or 2 separate equations involving $k \neq 1$ |
| | $\frac{a-4}{3+b} = \frac{3}{-2}$ | A1 | Correct unsimplified equation |
| | $0 = 2a + 3b + 1$ Given answer | A1 | Obtain **given answer** from correct working- need to see evidence |
| | | (4) | |
| | | **(6)** | |