| | | | | |
|---|---|---|---|---|
| **22** | $\frac{-10-0}{8-0}\left(=-\frac{10}{8}=-\frac{5}{4}\right)$ oe | | 6 | M1 for the gradient of the radius |
| | $\left[-\frac{5}{4}\right]\times m=-1$ oe<br>or<br>$(m=)"\frac{4}{5}"$ oe | | | M1ft for finding the gradient of the line perpendicular to the gradient of *their* radius for the gradient of **L** |
| | $-10="\frac{4}{5}"(8)+c$ or $(c=)\ -\frac{82}{5}=-16.4$<br>or<br>$y--10="\frac{4}{5}"(x-8)$ | | | M1ft for substitution to find '*c*' which is the *y* intercept (*R*) |
| | $0="\frac{4}{5}"x+"-\frac{82}{5}"$ oe<br>or<br>$10="\frac{4}{5}"(x-8)$ oe<br>or<br>$(x=)\frac{41}{2}=20.5$ | | | M1ft for substitution to find *x* intercept (*Q*) |
| | $\sqrt{("-16.4")^2+("20.5")^2}$ or<br>$\sqrt{("16.4")^2+("20.5")^2}$ | | | M1ft for a complete method to find *RQ* |
| | *Working not required, so correct answer scores full marks (unless from obvious incorrect working)* | 26.3 | | A1 allow 26.2 – 26.64 |
| | | | | **Total 6 marks** |

| | | | | |
|---|---|---|---|---|
| **22**<br>**ALT** | (radius =) $\sqrt{8^2+10^2}\left(=2\sqrt{41}=12.8...\right)$ | | 6 | M1 for finding the radius of the circle |
| | $\tan^{-1}\left(\frac{10}{8}\right)(=51.3...)$<br>**or**<br>$\tan^{-1}\left(\frac{8}{10}\right)(=38.7...)$ | | | M1 for finding the angle between the *x*-axis and the radius<br>**or**<br>the angle between the *y*-axis and radius |
| | $(x=)\frac{"12.8"}{\cos"51.3"}(=20.4(7205...))$ or<br>$(y=)\frac{"12.8"}{\cos"38.7"}(=16.4(0120...))$<br>$(PQ=)"12.8"\times\tan"51.3"(=15.9(7701...))$ or<br>$(PR=)"12.8"\times\tan"38.7"(=10.2(5473...))$ | | | M1ft For finding one of the lengths *x (OQ)* **or** *y (OR)* **or** *PQ* or *PR* |
| | $(x=)\frac{"12.8"}{\cos"51.3"}(=20.4(7205...))$ and<br>$(y=)\frac{"12.8"}{\cos"38.7"}(=16.4(0120...))$<br>$(PQ=)"12.8"\times\tan"51.3"(=15.9(7701...))$ and<br>$(PR=)"12.8"\times\tan"38.7"(=10.2(5473...))$ | | | M1ft finding both of the lengths *x* and *y*<br>**or**<br>both of the lengths *PQ* and *PR* |
| | $\sqrt{("20.4...")^2+("16.4...")^2}$ or<br>15.9(7701...) + 10.2(5473...) | | | M1ft for a complete method to find *RQ* |
| | *Working not required, so correct answer scores full marks (unless from obvious incorrect working)* | 26.3 | | A1 allow 26.2 – 26.64 |
| | | | | **Total 6 marks** |