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The Intersection Points of a Circle and a Line

Raindrop 10a

Find the coordinates of the intersection points of the straight line given by the equation: $y = -2x + 3$ and the circle with the equation: $(x + 4)^2 + (y - 2)^2 = 25$

Give the answers in surd form.

The answer follows on the next page …

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Answer The coordinates of the intersection points are:

$$\left\{ \frac{-2}{5}\left(1+\sqrt{11}\right),\ \frac{1}{5}\left(19+4\sqrt{11}\right) \right\}$$

and $$\left\{ \frac{-2}{5}\left(1-\sqrt{11}\right),\ \frac{1}{5}\left(19-4\sqrt{11}\right) \right\}$$

[Note: Quoting to 3 significant figures, these coordinates are:

$\{ -1.73 , 6.45 \}$

and $\{ 0.927 , 1.15 \}$]