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Computer science

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① $x - y - 14 = 0$; $x - 14 = y$ - eqn I $y = x - 14$
 $x^2 + y^2 - 6x + 8y = 0$ - eqn II $y = 7 - 14$
 $y = -7$

Sub eqn I in eqn II

$x^2 + (x - 14)^2 - 6x + 8(x - 14) = 0$ \therefore another point of
 $x^2 + (x - 14)(x - 14) - 6x + 8x - 112 = 0$ intersection is $[7, -7]$
 $x^2 + x^2 - 28x + 196 - 6x + 8x - 112 = 0$
 $2x^2 - 26x + 84 = 0$

divide each term by 2

$x^2 - 13x + 42 = 0$
 $x^2 - 7x - 6x + 42 = 0$
 $(x^2 - 7x) - (6x + 42) = 0$
 $x(x - 7) - 6(x + 7) = 0$
 $(x - 6)(x - 7) = 0$
 $(x - 6)(x - 7) = 0$
 $\therefore x - 6 = 0$ or $x - 7 = 0$
 ~~$x = 6$ or $x = 7$~~
 $x = 6$ or $x = 7$

Sub $x = 6$ in eqn I

$y = x - 14$
 $y = 6 - 14$
 $y = -8$

\therefore one point of intersection is $(6, -8)$

Sub $x = 7$ in eqn I

$$3) x - 5y - 2 = 0$$

$$x = 5y + 2 \quad \text{--- eqn I}$$

$$x^2 + 25y^2 - 62xy - 16 = 0 \quad \text{--- eqn II}$$

Sub eqn I in eqn II

$$[5y + 2]^2 + 25y^2 - 6[5y + 2]y - 16 = 0$$

$$[5y + 2][5y + 2] + 25y^2 - 6y[5y + 2] - 16 = 0$$

$$25y^2 + 20y + 4 + 25y^2 - 30y^2 - 12y - 16 = 0$$

$$50y^2 + 8y - 12 = 0$$

divide all terms by 4

$$12.5y^2 + 2y - 3 = 0$$

$$[5y^2 + 5y] - (3y - 3) = 0$$

$$5y(y + 1) - 3(y - 1) = 0$$

$$(5y - 3)(y + 1) = 0$$

$$5y - 3 = 0 \quad \text{or} \quad y + 1 = 0$$

$$5y = 3$$

$$y = \frac{3}{5} \quad \text{or} \quad y = -1$$

Sub $y = \frac{3}{5}$ in eqn I

$$x = 5y + 2$$

$$x = 5\left(\frac{3}{5}\right) + 2$$

$$x = 3 + 2$$

$$x = 5$$

∴ one of the point of Intersection is $(5, \frac{3}{5})$

Substituting $y = -1$

$$x = 5y + 2$$

$$x = 5(-1) + 2$$

$$x = -t + 2$$

$$x = -3$$

∴ another point of
intersection is $[-3, -1]$