Oct 24/08

Solving a system where at least one equation is non linear

Ex. $y = x^2 - 7x + 12$

$y = -x + 7$

$-x + 7 = x^2 - 7x + 12$

$0 = x^2 - 6x + 5$

$0 = (x - 5)(x - 1)$

$x = 5 \text{ or } 1$

$y = -x + 7$ $\qquad$ $y = -x + 7$

$y = -5 + 7$ $\qquad$ $y = -1 + 7$

$y = 2$ $\qquad$ $y = 6$

Soln $(5, 2)$ & $(1, 6)$

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Ex. $y = 5x - 15$

$2y = x^2 - 6$

$2(5x - 15) = x^2 - 6$

$10x - 30 = x^2 - 6$

$0 = x^2 - 10x + 24$

$0 = (x - 6)(x - 4)$

$x = 6 \text{ & } 4$

$y = 5x - 15$

$y = 5(6) - 15$

$y = 15$

$y = 5x - 15$

$y = 5(4) - 15$

$y = 5$

SOLN $(6, 15)$ & $(4, 5)$

Ex. $x^2 + y^2 = 16$

$+ \quad x^2 - y^2 = 16$

$\frac{2x^2}{2} = \frac{32}{2}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

$x^2 + y^2 = 16$

$(4)^2 + y^2 = 16$

$y = 0$

$x^2 + y^2 = 16$

$(-4)^2 + y^2 = 16$

$y = 0$

SOLN $(4, 0)$ & $(-4, 0)$

Ex #26 # 1-8, 10-16

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