Elimination

$2x+4y=12$

$6x-2y=8 \xrightarrow{\times 2}$

$2x+4y=12$

$12x-4y=16$

Substitution

$2x+4y=12$

$y=8x-2$

$2x+4(8x-2)=12$

$x^2+3x+2=0$ (2, 1, 0)

$(x+2)(x+1)=0$

$(x+2)=0 \quad (x+1)=0$

$x^4+3x^2+2=0$ (4, 2, 0)

$(x^2+2)(x^2+1)=0$

$x^2+2=0 \quad x^2+1=0$

$4x^2 + 3y^2 = 4$ $\xrightarrow{\times 2}$ $8x^2 + 6y^2 = 8$

$2x^2 - 6y^2 = -3$ $+$ $2x^2 - 6y^2 = -3$

$10x^2 = 5$

$x^2 = \frac{1}{2}$

$x = \pm\sqrt{1/2} = \pm .707$

$4(.707)^2 + 3y^2 = 4$

$4(.5) + 3y^2 = 4$

$2 + 3y^2 = 4$

$3y^2 = 2$

$y^2 = 2/3$

$y = \pm\sqrt{2/3}$

$(.707, \sqrt{2/3})$

$(.707, -\sqrt{2/3})$

$4(-.707)^2 + 3y^2 = 4$

$4(.5) + 3y^2 = 4$

$2 + 3y^2 = 4$

$3y^2 = 2$

$y^2 = \frac{2}{3}$

$y = \pm\sqrt{2/3}$

$(-.707, \sqrt{2/3})$

$(-.707, -\sqrt{2/3})$