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| **Fill in the Blanks** | **Solving Non-Linear Simultaneous Equations** |

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| **Question** | **State** $x=/ y=$**substitution** | **Substitute and rearrange to give quadratic equation** | **Solve the quadratic equation**  | **Find corresponding** $y$ **or** $x$ **values** |
| $$y=x^{2}-5x+3$$$$y=2x-7$$ | $$y=2x-7$$ | $$2x-7=x^{2}-5x+3$$$$0=x^{2}-7x+10$$ | $$\left(x-2\right)\left(x-5\right)=0$$$x=2$ or $x=5$ |  |
| $$x^{2}+2y=13-4x$$$$x+y=5$$ | $$y=5-x$$ | $$x^{2}+2(5-x)=13-4x$$$$x^{2}+10-2x=13-4x$$$$x^{2}+2x-3=0$$ |  |  |
| $$x^{2}+y^{2}=20$$$$x-y=2$$ | $$x=y+2$$ |  |  |  |
| $$y+10=x^{2}+x$$$$x-y-1=0$$ |  |  |  |  |
| $$3x^{2}-2y=7x-8$$$$3x=y-2$$ |  |  |  |  |
| $$x^{2}+y^{2}+xy=31$$$$x+y+1=0$$ |  |  |  |  |