Problem 0580/42/M/J/23 9C

Solve the simultaneous equations.
You must show all your working and give your answers correct to 2 decimal places.

$$2x + y = 7$$
$$y = 5x^2 + 2x - 13$$

Sol

$$y = 7 - 2x$$

$$7 - 2x = 5x^2 + 2x - 13$$

$$5x^2 + 4x - 20 = 0$$

$$a = 5 \quad b = 4 \quad c = -20$$

$$x = -\frac{b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-4 \pm \sqrt{16 + 4 \times 5 \times 20}}{2 \times 5}$$

$$x = 1.64 \qquad x = -2.44$$

$$y = 7 - 2(1.64) \qquad y = 11.88$$

$$= 3.72$$