

c) $Z = 5x^3y^2 + 3x^2 + 4y^4$

ACMA4006

$$\begin{array}{l} x \left\{ \begin{array}{l} \frac{\partial Z}{\partial x} = 15x^2y^2 + 6x \\ \frac{\partial^2 Z}{\partial x^2} = 30xy^2 + 6 \\ \frac{\partial^2 Z}{\partial y \partial x} = 30x^2y \end{array} \right. \end{array}$$

$$\begin{array}{l} y \left\{ \begin{array}{l} \frac{\partial Z}{\partial y} = 10x^3y + 16y^3 \\ \frac{\partial^2 Z}{\partial y^2} = 10x^3 + 48y^2 \\ \frac{\partial^2 Z}{\partial x \partial y} = 30x^2y \end{array} \right. \end{array}$$

Q Two

ai) $\frac{2x+3}{6} = \frac{x}{3} + \frac{5x-1}{6}$ multiply by 6

$$2x+3 = 2x + 5x - 1$$

$$4 = 5x$$

$$\frac{4}{5} = x$$

$$0.8 = x$$