

# Transformed graphs, stating their relationship

## Class exercise

a) The heat produced by nichrome wire is directly proportional to the square of the current going through the wire.

b) Points used to determine gradient  $(x_1, y_1) = (0, 0)$   
 $(x_2, y_2) = (9, 5500)$

$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{5500 - 0}{9 - 0} \\ &= 611.1 \end{aligned}$$

unit for the gradient =  $\frac{\text{unit on y axis}}{\text{unit on x axis}}$

$$= \frac{\text{J}}{\text{A}^2}$$

$$= \text{J A}^{-2}$$

the gradient for the nichrome wire is  $611 \text{ J A}^{-2}$ .

c). The intercept is  $0 \text{ J}$ .

d). dependent axis is  $E_{\text{heat}}$

independent axis is  $I^2$

gradient is  $611 \text{ J A}^{-2}$

intercept is  $0 \text{ J}$

$$y = mx + c$$

$$E_{\text{heat}} = (611 \text{ J A}^{-2}) I^2 + 0$$

the mathematical relationship for the nichrome wire is,  $E_{\text{heat}} = (611 \text{ J A}^{-2}) I^2$