

# Transformed graphs, stating their relationship

## Homework exercise

- b. 1. The volume of air is directly proportional to the inverse of the applied pressure.
2. Points used to determine the gradient  $(x_1, y_1) = (0, 0)$   
 $(x_2, y_2) = (0.04, 0.10)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$= \frac{(0.10 - 0)}{(0.04 - 0)}$$
$$= 2.5$$

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

$$= \frac{\text{m}^3}{(\text{kPa})^{-1}} = \text{m}^3 \text{kPa}$$

the gradient for the pressurised gas is  $2.5 \text{ m}^3 \text{kPa}$

3. The intercept is  $0 \text{ m}^3$

4. dependent axis is V

independent axis is P

gradient is  $2.5 \text{ m}^3 \text{kPa}$

intercept is  $0 \text{ m}^3$

$$y = mx + c$$

$$V = (2.5 \text{ m}^3 \text{kPa}) P + 0$$

the mathematical relationship for the pressurised gas is  $V = (2.5 \text{ m}^3 \text{kPa}) P$