Module 5 Lesson 2:
TT 5. *Foundations and Pre-calculus Mathematics 10* (Pearson), questions 4, 9, and 16 on pages 319 to 322 **Possible Solutions**

4. a) i) The vertical and horizontal intercepts are (0, 0).

ii) Using the endpoints (0, 0) and (3, 120), the rate of change is

$$\frac{(120-0)km}{(3-0)h} = 40km/h$$

iii) domain: {t| $0 \le t \le 3$, t e R}; range:{d| $0 \le d \le 120$, d e R}

b) i) The vertical intercept is 100 km with coordinates (0, 100). The horizontal intercept is 4 h with coordinates (4, 0).

ii) Using the endpoints (0, 100) and (4, 0), the rate of change is

$$\frac{(100-0)km}{(0-4)h} = -25km/h$$

iii) domain: {t| $0 \le t \le 4$, t e R}; range: {d| $0 \le d \le 100$, d e R}

9. a) Both the vertical and horizontal intercept is (0, 0). This point indicates that when the backhoe is not operated there is no cost.

b) Using the endpoints (10, 800) and (0, 0), the rate of change is

$$\frac{\$(800-0)}{(10-0)h} = \$80/h$$

This is the cost of operating the backhoe.

c) domain: {t| $0 \le t \le 10$, t e R}; range: {C| $0 \le C \le 800$, C e R}

d) 7 h $\times$ \$80/h $=$ \$560

e) $\frac{\$360}{\$80/\text{h}} = 4.5$ h

16. a) Using the points (300, 200) and (0, -40),

$$profit = \frac{\$[200-(-40)]}{(300-0)bars}$$

$$profit = \frac{\$240}{300\,bars}$$

$$profit = \$0.80/bar$$

b) The vertical intercept is (0, –40). This means that there would be a loss of $40 if no power bars were sold. The horizontal intercept is (50, 0). This means that 50 power bars need to be sold in order to break even or to make back the money that was invested.

c) The domain is {n| $0 \leq n \leq 300$, n e R}, where *n* is a whole number. The range is {P|, $-40 \leq P \leq 200$,PeR} where *P* is a multiple of 0.80.