**Practice 4.1**

1. Determine the rate of change (or constant of variation) for each direct variation.
2. The distance travelled by a car varies directly with time. The car travels 270 km in 3 h. Find the speed of the car in km/h.
3. The distance travelled on a trip varies directly with the amount of gas used. A car travelled 375 km and used 25 litres of gas. Find the distance travelled per litre used.
4. The money earned by an employee varies directly with time. The employee earned $320 in 40 h. Find the pay per hour.
5. The cost, *C,* in dollars, of building a patio varies directly with its width, *w,* in metres.
6. Find an equation relating $C$ and *w* if the cost of building a patio with a width of 4 m is $300.
7. What does the rate of change represent?
8. Use the equation to determine the cost of the patio with a width of 7 m.
9. The total cost of potatoes varies directly with the mass, in kilograms, bought. Potatoes cost $2.18/kg.
10. Create a table of values showing the cost of 0 kg, 1 kg, 2 kg…up to 5kg of potatoes.
11. Graph the relationship.
12. Write an equation for the relationship in the form $y=mx$.
13. A marina charges $9.50 per hour to rent a boat.
14. Determine an equation to represent the cost of renting the boat given time.
15. Use your equation to find the cost to rent for 12 hours.
16. The volume of water in a water tank varies with time. The tank contains 200 L of water after 2 min.
17. Find the rate of change in litres per minute.
18. Write an equation relating the volume of water and time.
19. Graph the relation using pencil/graph paper or technology.
20. What volume of water is in the tank after 30 min?
21. How long will it take to fill a water tank that can hold 100 000 L of water?