

Example



The equation $V = -0.08d + 50$ represents the volume, V liters, of gas remaining in a vehicle's tank after travelling d kilometers. The tank is not filled until it is empty.



a) Describe the function.

Write the equation in function notation.

$$V(d) = -0.08d + 50$$

b) Determine the value of $V(600)$.

What does this number represent?

$$V(600) = -0.08(600) + 50$$

$$= -48 + 50$$

$$= 2$$

c) Determine the value of d when $V(d) = 26$.

What does this number represent?

$$V(d) = -0.08d + 50$$

$$26 = -0.08d + 50$$

$$-24 = -0.08d$$

$$\frac{-24}{-0.08} = \frac{-0.08d}{-0.08}$$

$$d = 300 \text{ km}$$



Try This!!!



3. The equation $C = 25n + 1000$ represents the cost, C dollars, for a feast following an Arctic sports competition, where n is the number of people attending.

a) Describe the function.

Write the equation in function notation.

$$C(n) = 25n + 1000$$

$$C(100) = 25(100) + 1000$$

$$= 2500 + 1000$$

$$= \$3500$$

b) Determine the value of $C(100)$.

What does this number represent?

c) Determine the value of n when $C(n) = 5000$.

What does this number represent?

$$C(n) = 25n + 1000$$

$$5000 = 25n + 1000$$

$$-1000$$

$$4000 = 25n$$

$$\frac{4000}{25} = \frac{25n}{25}$$

$$n = 160 \text{ people}$$

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2. a) Which relations in question 1 are functions? Justify your answers.
 b) State the domain and range of each function.
3. a) Think about two sets of numbers and an association.
 i) Create a relation that is not a function.
 ii) Create a function.
 b) Represent each relation in part a in different ways.
4. The temperature, T degrees Celsius, of Earth's interior is a function of the distance, d kilometres, below the surface: $T(d) = 10d + 20$
 a) Identify the dependent and independent variables. *T → dependent d → ind.*
 b) Write this function as an equation in two variables. *T = 10d + 20*
 c) Determine the value of $T(5)$. Describe what this number represents.
 d) Determine the value of d when $T(d) = 50$. Describe what this number represents.

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$$T(5) = 10(5) + 20$$

$$= 50 + 20$$

$$= 70$$

$$T(d) = 10d + 20$$

$$50 = 10d + 20$$

$$\begin{array}{r} -20 \\ \hline 30 = 10d \end{array}$$

$$\frac{30}{10} = \frac{10d}{10}$$

$$d = 3$$

