

DETERMINING RELATIONSHIPS FROM GRAPHS

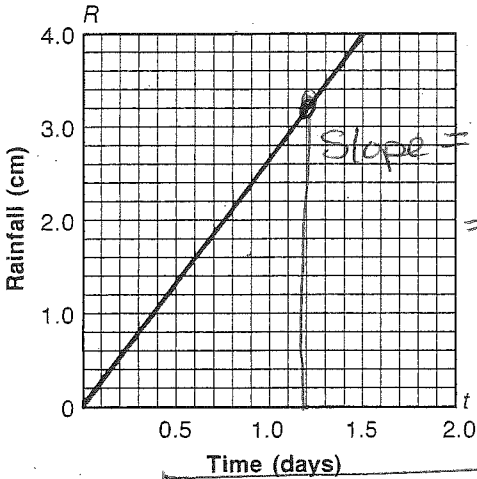
When data are plotted and the curve of the graph is a straight line, the relationship between the independent and dependent variables is described as a linear relationship. All such relationships can be described by the general equation $y = mx + b$. In this equation, m is the slope of the line and b is the y-intercept. For each graph shown, calculate the slope and identify the y-intercept. Then write the equation that describes the relationship shown in the graph. Be sure to include the appropriate units in your equations.

* Include units

* Slopes in decimal form

* Significant digits

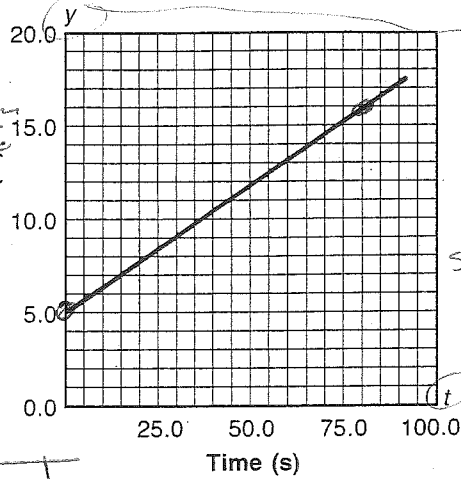
Rainfall versus Time



Slope = $\frac{3.2\text{cm} - 0\text{cm}}{1.2\text{days} - 0\text{days}}$
 $= 2.7\text{cm/day}$

$$R = (2.7\text{cm/day}) \times t$$

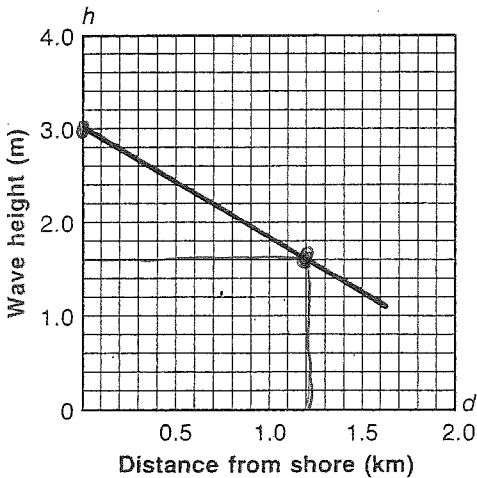
Position versus Time



$y = mx + b$
 $y = (0.14\text{m/s})t + 5.0\text{m}$

Slope = $m = \frac{16.0\text{m} - 5.0\text{m}}{80.0\text{s} - 0\text{s}}$
 $= 0.1375\text{m/s}$

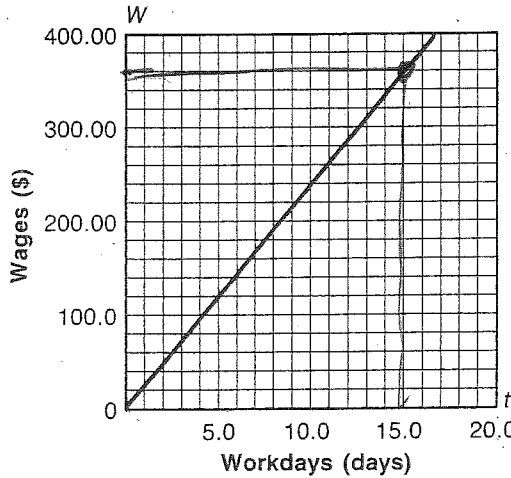
Wave Height versus Distance



Slope = $\frac{1.6\text{m} - 3.0\text{m}}{1.2\text{km} - 0.0\text{km}}$
 $= -1.2\text{m/km}$

$$h = (-1.2\text{m/km}) \times d + 3.0\text{m}$$

Wages versus Workdays



Slope = $\frac{\$360.00 - 0}{15.0\text{days} - 0}$
 $= \$24/\text{day}$

$$W = (\$24/\text{day}) \times t$$