

### Answer on Question #73305-Physics-Other

Déterminé how far away from you that your Friend os After 7.9 seconds

Time t(s) Position d(m)

0.0. 15

1.0. 19

2.0. 26

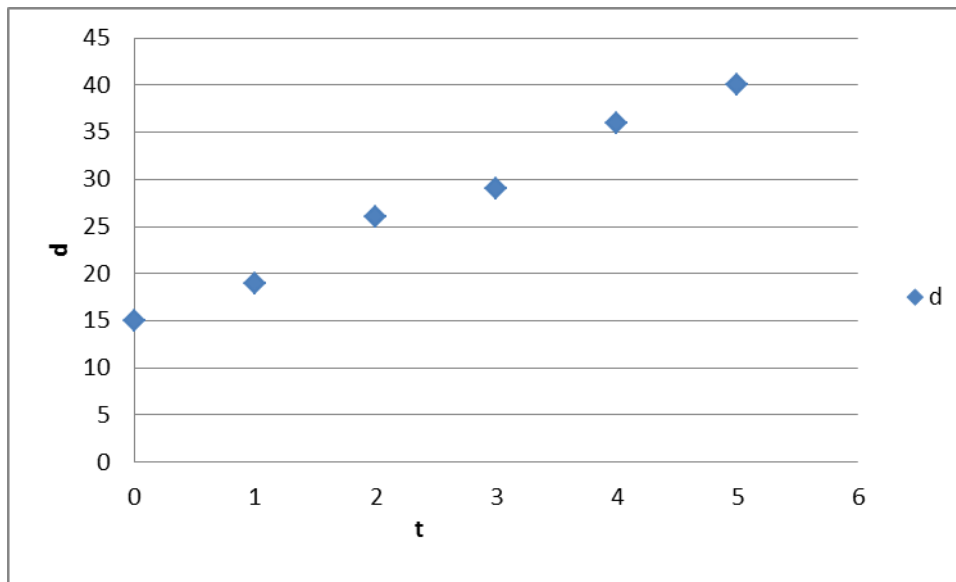
3.0. 29

4.0. 36

5.0. 40

### Solution

We use Excel to create a scatterplot of this data:



This dependence seems to be linear.

$$\sum t = 0 + 1 + 2 + 3 + 4 + 5 = 15$$

$$\sum d = 15 + 19 + 26 + 29 + 36 + 40 = 165$$

$$\sum t^2 = 0^2 + 1^2 + 2^2 + 3^2 + 4^2 + 5^2 = 55$$

$$\sum dt = 0 \cdot 15 + 1 \cdot 19 + 2 \cdot 26 + 3 \cdot 29 + 4 \cdot 36 + 5 \cdot 40 = 502$$

The slope is

$$b = \frac{n \sum d t - (\sum d)(\sum t)}{n \sum t^2 - (\sum t)^2} = \frac{6(502) - (165)(15)}{6(55) - (15)^2} = \frac{179}{35} = 5.1143$$

The intercept is

$$a = \frac{(\sum d) - b(\sum t)}{n} = \frac{(165) - \frac{179}{35}(15)}{6} = 14.714.$$

The regression line is

$$d = 5.114t + 14.714$$

The position after 7.9 seconds is

$$d(7.9) = 5.114(7.9) + 14.714 = 55 \text{ m.}$$

Answer provided by <https://www.AssignmentExpert.com>