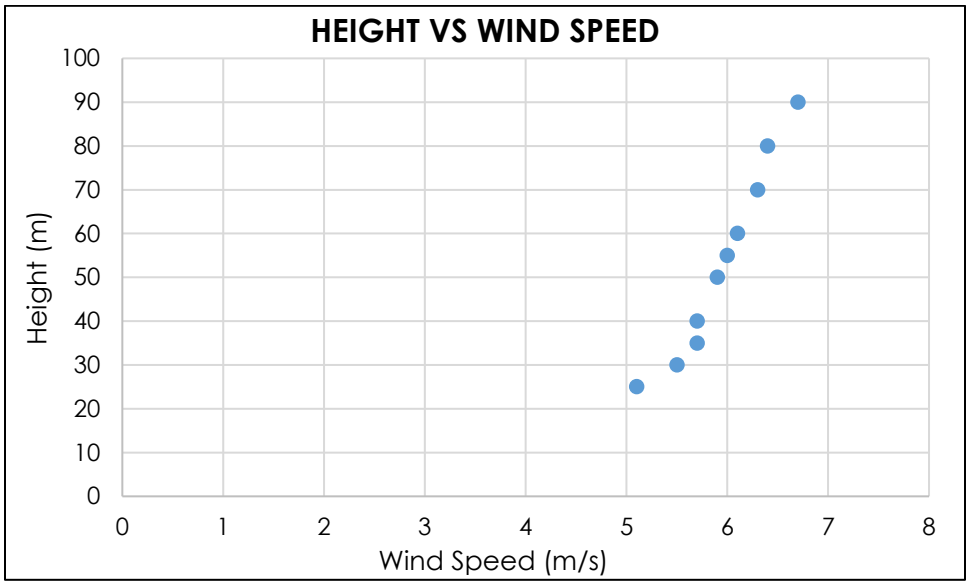
2021A14 (GRAPHING, EXPONENTS)

Level 1: The plot of the given points below. Plots may vary based on axes.



Wind speed increases as height increases.

Level 2: Rearrange the given equation so that it solves for alpha.

$$\frac{v_2}{v_1} = \left(\frac{z_2}{z_1}\right)^{\alpha}$$

$$\log\left(\frac{v_2}{v_1}\right) = \log\left(\left(\frac{z_2}{z_1}\right)^{\alpha}\right)$$

$$\log\left(\frac{v_2}{v_1}\right) = \alpha * \log\left(\frac{z_2}{z_1}\right)$$

$$\alpha = \frac{\log\left(\frac{v_2}{v_1}\right)}{\log\left(\frac{z_2}{z_1}\right)}$$

Then substitute the values and solve. Use the 80 m data as for z_1 and v_1.

$$\alpha = \frac{\log\left(\frac{6.7}{6.4}\right)}{\log\left(\frac{90}{80}\right)}$$

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$$\alpha = 0.39$$

WIND STUDY

Wind Study is intended for grades 5-8 and 8-11
Questions posted on: Monday Answers posted on: Friday
Find downloadable one pagers at www.oneenergy.com/one-energy-feed

An operating Wind for Industry® project.