

S.ID.B.6: Regression 7

- 1 The accompanying table shows wind speed and the corresponding wind chill factor when the air temperature is 10°F.

Wind Speed (mi/h) x	Wind Chill Factor (°F) y
4	3
5	1
12	-5
16	-7
22	-10
31	-12

Write the logarithmic regression equation for this set of data, rounding coefficients to the *nearest ten thousandth*. Using this equation, find the wind chill factor, to the *nearest degree*, when the wind speed is 50 miles per hour. Based on your equation, if the wind chill factor is 0, what is the wind speed, to the *nearest mile per hour*?

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Answer Section

1 ANS:

$$y = 13.0134 - 7.3135 \ln x, -16, 6. \quad y = 13.0134 - 7.3135 \ln(50) \approx -16.$$
$$0 = 13.0134 - 7.3135 \ln x$$
$$-13.0134 = -7.3135 \ln x$$
$$\frac{13.0134}{7.3135} = \ln x$$
$$x = e^{\frac{13.0134}{7.3135}} \approx 6$$

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