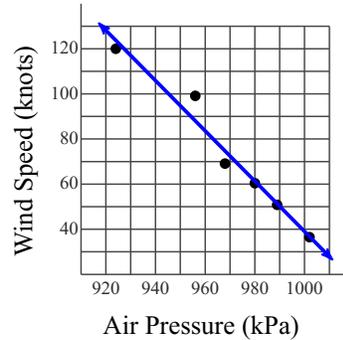


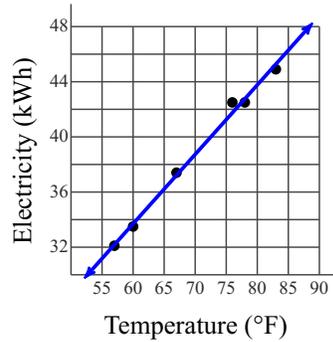
## 8.SP.3 Use line of best fit test review

- 1) There is a close relationship between the air pressure inside a hurricane and its maximum sustained wind speed:  $y = -1.11x + 1150$  where  $x$  is the air pressure in millibars (kPa) and  $y$  is the wind speed in knots (nautical miles per hour).



- What does the slope of the line represent?
- What does the y-intercept of this function represent?
- Using the model, what would be the wind speed of a hurricane with an air pressure of 947 kPa? Round your answer to the nearest knot.
- The model indicates that a wind speed of 110 knots is associated with what air pressure? Round your answer to the nearest millibar.

- 2) The average amount of electricity consumed by a household in a day is strongly correlated to the average daily temperature for that day. This relationship is given by  $y = 0.504x + 3.48$  where  $x$  is the temperature in  $^{\circ}\text{F}$  and  $y$  is the amount of electricity consumed in kilowatt-hours (kWh).



- a) What does the slope of the line represent?
- b) What does the y-intercept of this function represent?
- c) Using the model, how much electricity would be consumed if the average daily temperature was  $72^{\circ}\text{F}$ ? Round your answer to the nearest kilowatt-hour.
- d) What temperature would it need to reach in order for 36 kWh to be consumed? Round your answer to the nearest degree.

## Answers to 8.SP.3 Use line of best fit test review

- 1) Slope: The change in wind speed for every 1 kPa increase in air pressure  
Y-intercept: The wind speed of a hurricane with an air pressure of 0 kPa  
99 knots, 937 kPa
- 2) Slope: The additional electricity consumption for each additional degree Fahrenheit  
Y-intercept: The average electricity consumption for a daily average temperature of 0°F  
40 kWh, 65°F