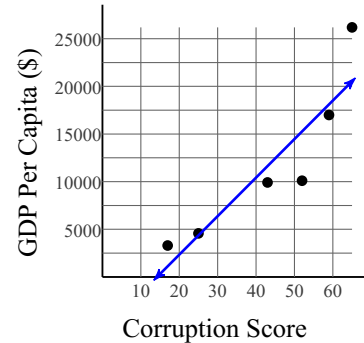


8.SP.3 Classwork

- 1) Economists have found that the amount of corruption in a country is correlated to the productivity of that country. Productivity is measured by gross domestic product (GDP) per capita. Corruption is measured on a scale from 0 to 100 with 0 being highly corrupt and 100 being least corrupt:

Corruption Score	GDP Per Capita (\$)
17	3,290
25	4,570
43	9,910
52	10,100
59	17,000
65	26,200

This can be modeled by the equation $y = 404x - 5750$ where x is the corruption score and y is GDP per capita in dollars.

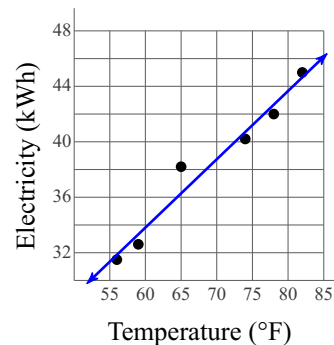


- What does the slope of the line represent?
- What does the y-intercept of this function represent?
- According to the model, what would be the GDP per capita of a country with a corruption score of 39? Round your answer to the nearest dollar.
- Using this model, a country with a corruption score of 90 would have what GDP per capita? Round your answer to the nearest dollar.

- 2) Households consume much more electricity when the weather is warmer:

Temperature (°F)	Electricity (kWh)
56	31.5
59	32.6
65	38.2
74	40.2
78	42
82	45

This can be modeled by the equation $y = 0.492x + 4.28$ where x is the average daily temperature in °F and y is the average amount of electricity consumed in kilowatt-hours (kWh).

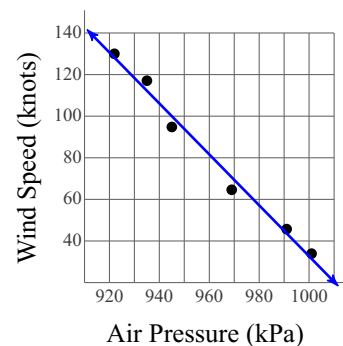


- a) What does the slope of the line represent?
- b) What does the y-intercept of this function represent?
- c) Using the model, how much electricity would be consumed if the average daily temperature was 71°F? Round your answer to the nearest kilowatt-hour.

- 3) The Hurricane Hunters took the following measurements from a hurricane over several days as it developed:

Air Pressure (kPa)	Wind Speed (knots)
922	130
935	117
945	94.8
969	64.6
991	45.7
1,001	33.9

They found that the air pressure and wind speed are related in the following way: $y = -1.22x + 1260$ where x is the air pressure in millibars (kPa) and y is the maximum sustained wind speed in knots (nautical miles per hour).



- a) What does the slope of the line represent?
- b) What does the y-intercept of this function represent?
- c) According to the model, a hurricane with an air pressure of 864 kPa would have what wind speed? Round your answer to the nearest knot.

Answers to 8.SP.3 Classwork

- 1) Slope: The increase in GDP per capita for every increase of one in corruption score
Y-intercept: The GDP per capita of a country with a corruption score of zero
\$10,006, \$30,610
- 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
39 kWh
- 3) 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
206 knots