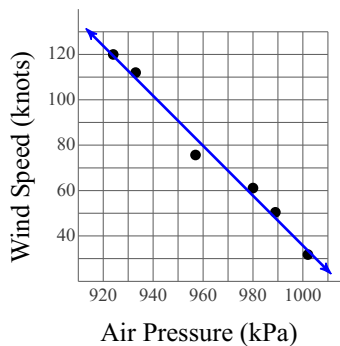


Interpreting Slope and y-intercept

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

Air Pressure (kPa)	Wind Speed (knots)
924	120
933	112
957	75.7
980	61.1
989	50.4
1,002	31.8

They found that the air pressure and wind speed are related in the following way: $y = -1.1x + 1140$ where x is the air pressure in millibars (kPa) and y is the maximum sustained wind speed in knots (nautical miles per hour).

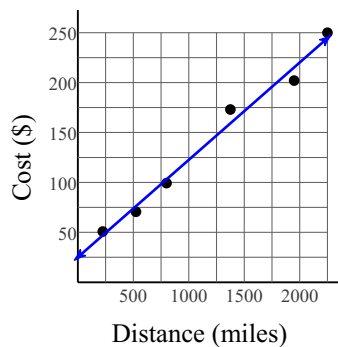


- What does the slope of the line represent?
- What does the y-intercept of this function represent?

- 2) The cost of a flight is related to the distance traveled:

Miles	Cost (\$)
225	50.8
525	70.6
800	99.3
1,375	173
1,950	202
2,250	250

This can be modeled by the equation $y = 0.0975x + 25.2$ where x is distance in miles and y is cost in dollars.

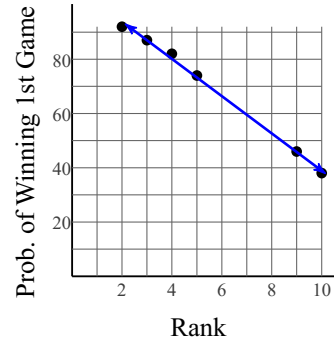


- What does the slope of the line represent?
- What does the y-intercept of this function represent?

- 3) By examining past tournaments, it's possible to calculate the probability that a school wins their first game in the national college basketball tournament.

Rank	Probability (%)
2	92
3	87
4	82
5	74
9	46
10	38

Each school's rank going into the tournament is a strong indicator of their likelihood of winning their first game. This can be expressed as $y = -6.87x + 108$ where x is their rank (out of 16) and y is the percent chance they have of winning their first game.

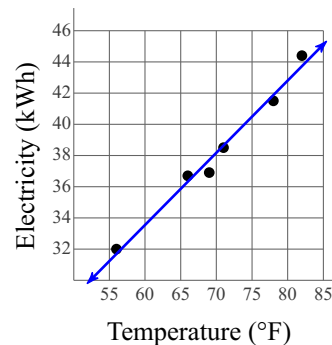


- a) What does the slope of the line represent?
 b) What does the y-intercept of this function represent?

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

Temperature (°F)	Electricity (kWh)
56	32
66	36.7
69	36.9
71	38.5
78	41.5
82	44.4

This can be modeled by the equation $y = 0.463x + 5.79$ where x is the average daily temperature in °F and y is the average amount of electricity consumed in kilowatt-hours (kWh).

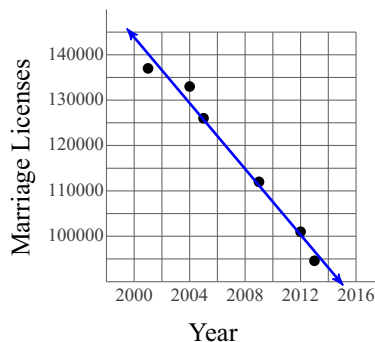


- a) What does the slope of the line represent?
 b) What does the y-intercept of this function represent?

- 5) The number of marriage licenses issued by Clark County Nevada, the county where Las Vegas is located, has been decreasing since the year 2000:

Year	Marriage Licenses
2001	137,000
2004	133,000
2005	126,000
2009	112,000
2012	101,000
2013	94,600

This can be modeled by the equation $y = -3625.9x + 7395600$ where x is the year and y is the number of marriage licenses issued.

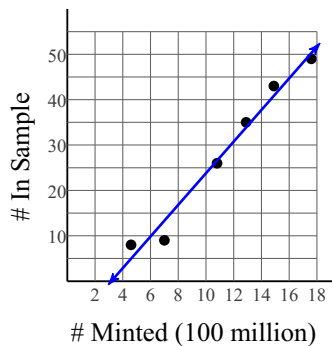


- a) What does the slope of the line represent?
- b) What does the y-intercept of this function represent?

- 6) Darryl collects coins. Over a three-year period he collected 1,000 nickels. After organizing them by year, he found that the number of nickels from a given year was related to the number minted that year:

Minted (100 mill.)	In Sample
4.6	8
7	9
10.8	26
12.9	35
14.9	43
17.6	49

Darryl discovered that this can be modeled by the equation $y = 3.49x - 11.1$ where x is the number of nickels minted in a particular year in hundreds of millions and y is the number of nickels from that year in his sample.

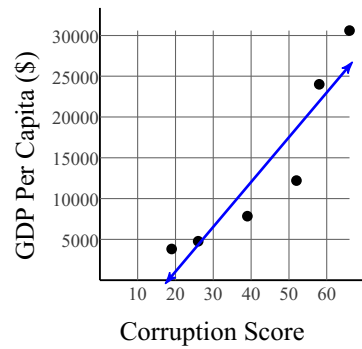


- a) What does the slope of the line represent?
- b) What does the y-intercept of this function represent?

7) 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 (\$)
19	3,820
26	4,770
39	7,840
52	12,200
58	24,000
66	30,600

This can be modeled by the equation $y = 549x - 9920$ where x is the corruption score and y is GDP per capita in dollars.

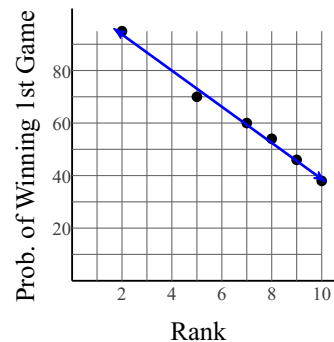


- a) What does the slope of the line represent?
- b) What does the y-intercept of this function represent?

8) By examining past tournaments, it's possible to calculate the probability that a school wins their first game in the national college basketball tournament.

Rank	Probability (%)
2	95
5	70
7	60
8	54
9	46
10	38

Each school's rank going into the tournament is a strong indicator of their likelihood of winning their first game. This can be expressed as $y = -6.88x + 107$ where x is their rank (out of 16) and y is the percent chance they have of winning their first game.



- a) What does the slope of the line represent?
- b) What does the y-intercept of this function represent?