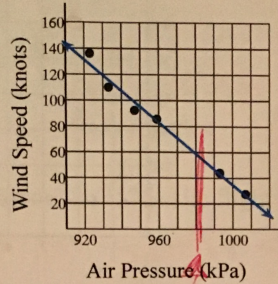


For questions #15-18:

a) Use the given regression equation to estimate a missing value.

b) Say whether that estimated value is an interpolation or an extrapolation.

- 21) There is a close relationship between the air pressure inside a hurricane and its maximum sustained wind speed. $y = -1.21x + 1240$ where x is the air pressure in millibars (kPa) and y is the wind speed in knots (nautical miles per hour).

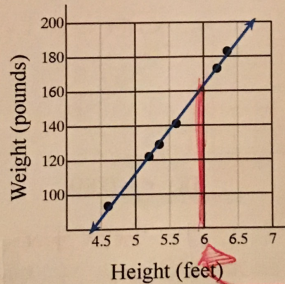


- a) Using the model, what would be the wind speed of a hurricane with an air pressure of 984 kPa? Round your answer to the nearest knot.

$$y = -1.21(984) + 1240$$
$$y = -1190.64 + 1240$$
$$y = \boxed{49.36}$$

b) INTERPOLATION

- 22) The height and weight of adults can be related by the equation $y = 51x - 143$ where x is height in feet and y is weight in pounds.

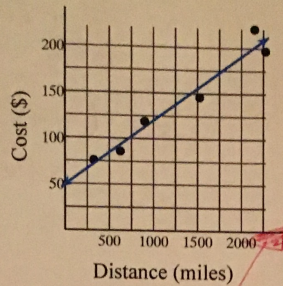


- a) According to the model, what would be the weight of someone who is 6 ft tall? Round your answer to the nearest tenth.

$$y = 51(6) - 143$$
$$y = 306 - 143$$
$$y = \boxed{163}$$

b) INTERPOLATION

- 23) The cost of a flight is related to the length of the flight by $y = 0.0708x + 48.8$ where x is distance in miles y is cost in dollars.



- a) According to the model, how much would a 4525-mile flight cost? Round your answer to the nearest dollar.

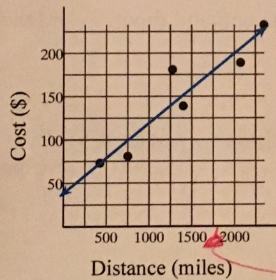
$$y = 0.0708(4525) + 48.8$$

$$y = 320.37 + 48.8$$

$$y = \boxed{369.17}$$

b) **EXTRAPOLATION**

- 24) The cost of a flight is related to the length of the flight by $y = 0.0806x + 38.1$ where x is distance in miles y is cost in dollars.



- a) Using this model, what would be the cost of a flight that travels 1800 miles? Round your answer to the nearest dollar.

$$y = 0.0806(1800) + 38.1$$

$$y = 145.08 + 38.1$$

$$y = \boxed{183.18}$$

b) **INTERPOLATION**

25) What is the difference between WHOLESALE price and RETAIL price?

WHOLESALE: THE AMOUNT THE RETAIL STORES PAY THE MANUFACTURERS FOR AN ITEM.

RETAIL: THE AMOUNT THE GENERAL PUBLIC PAYS THE RETAIL STORES FOR AN ITEM.

27) What does it mean if there is a SHORTAGE of an item?

IT MEANS THERE IS NOT ENOUGH OF THE ITEM.

(TOO MUCH DEMAND, NOT ENOUGH SUPPLY.)

26) What does it mean if there is a SURPLUS of an item?

IT MEANS THERE IS TOO MUCH OF THE ITEM.

(TOO MUCH SUPPLY, NOT ENOUGH DEMAND).

28) What is EQUILIBRIUM in the business/retail world?

WHEN THE SUPPLY AMOUNT AND THE DEMAND AMOUNT ARE EQUAL.

29) In the graph below, the red function is the demand function and the blue function is the supply function.

a) Explain what would happen if the widget was priced at \$1.75.

THERE WOULD BE TOO MUCH DEMAND AND NOT ENOUGH SUPPLY. THERE WOULD BE A SHORTAGE.

b) Explain what would happen if the widget was priced at \$3.50.

THERE WOULD BE TOO MUCH SUPPLY AND NOT ENOUGH DEMAND. THERE WOULD BE A SURPLUS.

