Bellwork Alg 2 Tuesday, April 30, 2019

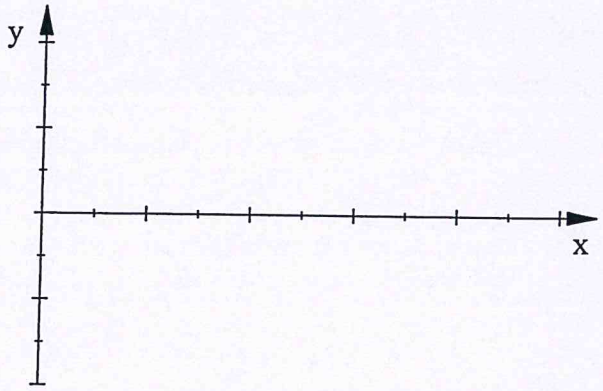
Average Low Temperature, Fairbanks, Alaska

Month (x)	Jan - 1	Feb - 2	3	4	5	6	7	8	9	10	11	12
Temp (°F) (y)	−18	−14	−2	20	38	49	52	46	35	17	−4	−15

1. Use the data above.

a. Make a scatter plot then model the scatter plot with either a Sin or a Cos equation.

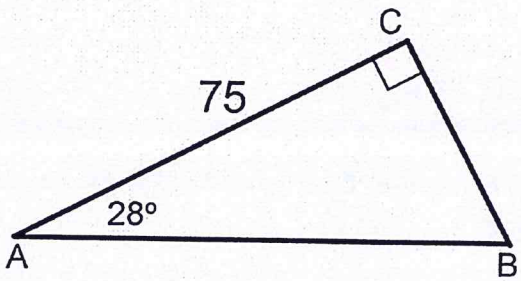
Sketch of scatter plot: Equation:



b. Graph the equation and the scatter plot together. Does this equation seem to be a good fit? Give a reason for your answer.

2. A repairman is high up on a power pole and attaches a cable to the pole. The repairman throws the rest of the cable to another worker on the ground who attaches it to an anchor in the ground. The length of the cable used is 57 feet. If the anchor is 30 feet from the base of the pole find the angle the cable makes with the ground. Round to the nearest tenth.

3. Solve this triangle. Round to the nearest hundredth.



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ANSWERS

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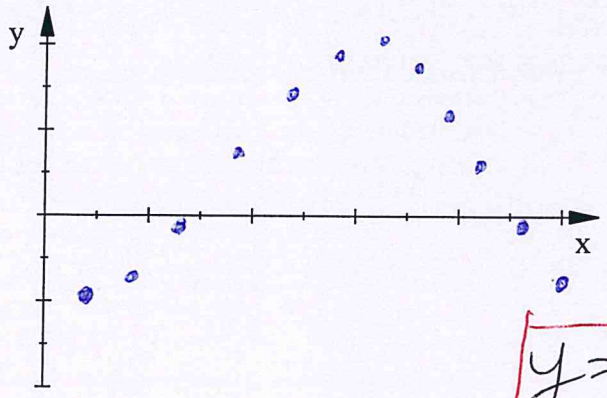


Equation:

MAX TEMP = 52

MIN TEMP = −18

Amplitude = $\frac{52 - -18}{2} = 35$

MIDLINE: $y = \frac{52 + -18}{2} = 17$

period = 12 $b = \frac{2\pi}{12} = \frac{\pi}{6}$

START AT (1, −18)

phase shift = 1 RIGHT

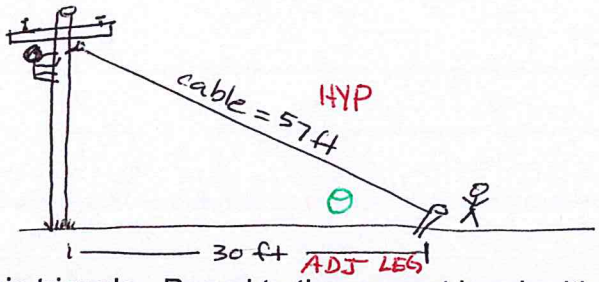
upside down Cos.

$y = -35\cos\left(\frac{\pi}{6}(x-1)\right) + 17$

b. Graph the equation and the scatter plot together. Does this equation seem to be a good fit? Give a reason for your answer.

Yes, it's a very good fit because it touches all the data points and passes through the middle of most of them.

2. A repairman is high up on a power pole and attaches a cable to the pole. The repairman throws the rest of the cable to another worker on the ground who attaches it to an anchor in the ground. The length of the cable used is 57 feet. If the anchor is 30 feet from the base of the pole find the angle the cable makes with the ground. Round to the nearest tenth.



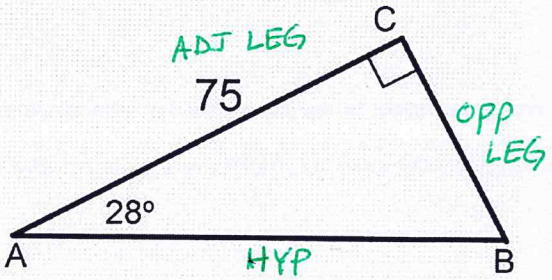
SOHCAHTOA

$\cos\theta = \frac{30}{57}$

$\theta = \cos^{-1}\left(\frac{30}{57}\right)$

$\theta = 58.2°$

3. Solve this triangle. Round to the nearest hundredth.



- $\angle B = 180 - 90 - 28$ $\angle B = 62°$
- BC: $\tan 28° = \frac{BC}{75}$ $BC = 39.88$
- AB $\frac{\cos 28°}{1} = \frac{75}{AB}$ $AB = 84.94$