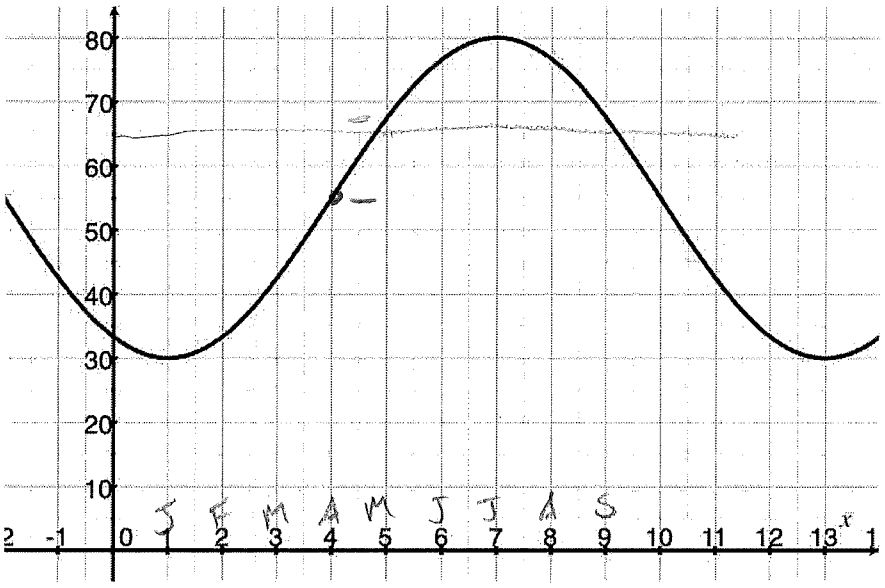
Key

Quiz 4

This is a two-stage quiz. During the first stage, use your knowledge & calculator to take this quiz and a one-sided 8.5 by 5 inch sheet of notes. You have 15 min. In the second stage. You are now welcome to use your books, notes, and students in the class to retake the same quiz. You have 15 min. to write one solution to be turned in for the group.

Show *all* your work. Reasonable supporting work must be shown for any partial credit.

1. The maximum afternoon temperature for a city is modeled on the right. Here T is the maximum afternoon temperature in month x, where $x = 1$ corresponds to January.



Worth 11: #16

(a) [1] Approximate the maximum afternoon temperature of the city in April?

$\approx 55°$ (anywhere between 55° and 65° is ok)

(b) [2] What month(s) have a maximum afternoon temperature of 65°?

y value of 65 (+.5) are (+.5) $\approx$ May (+.5) and Sept (+.5)

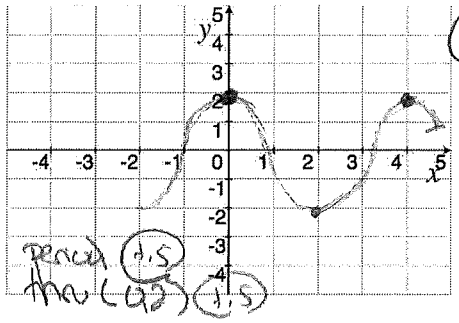
§4.4 #52 trig transform activity

(c) [1] Find the amplitude of the graph of $T(x)$ (+.5)

$\frac{80-30}{2} = \frac{\text{peak-trough}}{2} = \frac{50}{2} = 25$ (+.5) Knows amp (+.5)

2. [3] Provide a graph AND an algebraic rule/expression of a sinusoidal curve that goes through $(0, 2)$ and has a period of 4. (There are *many* correct answers!!)

§4.4 #46 or Worth 1/2?



period thru (0,2) (+.5) (+.5)

shape (+.5)

(+.5) $A\cos(B(x-C))$

$2\cos\left(\frac{\pi}{2}x\right)$ (+.5) thru (0,2)

amp = 2 $\Rightarrow A = 2$

no phase shift

period = 4

$\frac{2\pi}{B} = 4$

$\frac{2\pi}{4} = \frac{4B}{4}$

$\frac{\pi}{2} = B$ (+.5)

Trig Def Activity #3

§4.3 #32

Worth 1/15

3. [3] Let $\cos(\theta) = \frac{-8}{17}$ and $\pi \le \theta \le \frac{3\pi}{2}$. Find $\sin(\theta)$.

15/17 ± .8235...

(+.5) $\sin^2\theta + \cos^2\theta = 1$

(+.5) $\sin^2\theta + \left(\frac{-8}{17}\right)^2 = 1$

$\sin^2\theta + \frac{64}{17^2} = 1$

$\sin^2\theta = 1 - \frac{64}{17^2}$

$\sin^2\theta = \frac{225}{17^2}$

$\sin\theta = \pm\sqrt{\frac{225}{17^2}}$

$\sin\theta = \pm\frac{15}{17}$ (+.5)

(+.5) negative

$\sin\theta = -\frac{15}{17}$

Stated (+.5)

Method (+.5)