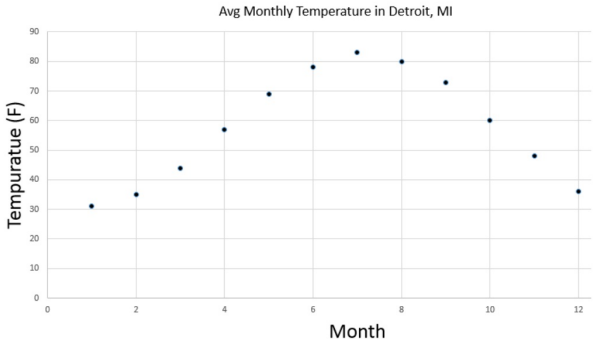
Average Montly Temperature Detroit, Michigan

Make a scatter plot on the graphing calculator of this data.

	L_1	L_2
Month	Average High Temp °F
Jan → 1	31
Feb → 2	35
March → 3	44
April → 4	57
May → 5	69
June → 6	78
July → 7	83
Aug → 8	80
Sept → 9	73
Oct → 10	60
Nov → 11	48
Dec → 12	36



This data has the same shape as an Upside down Cosine Function!

Average Montly Temperature Detroit, Michigan

Make a scatter plot on the graphing calculator of this data.

	L_1	L_2
Month	Average High Temp °F
Jan → 1	31
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Nov → 11	48
Dec → 12	36

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

Amp $\frac{83-31}{2} = 26$

midline $\frac{83+31}{2} = 57$

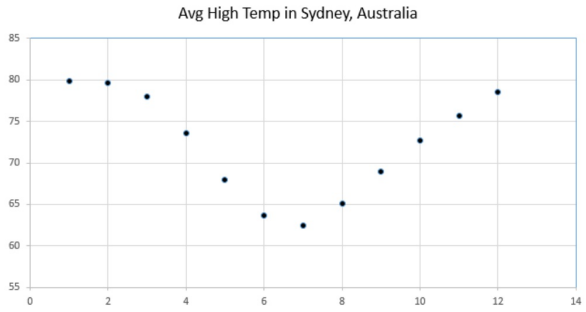
phase shift 1 RT

$$y = -26\cos\left(\frac{\pi}{6}(x-1)\right) + 57$$

Sydney, Australia

Make a scatter plot on the graphing calculator of this data.

	L_1	L_2
Month	Average High Temp °F
Jan → 1	79.9
Feb → 2	79.7
March → 3	78
April → 4	73.6
May → 5	68
June → 6	63.7
July → 7	62.4
Aug → 8	65.1
Sept → 9	68.9
Oct → 10	72.7
Nov → 11	75.7
Dec → 12	78.6



This data has the same shape as a Cosine Function!

Sydney, Australia

Make a scatter plot on the graphing calculator of this data.

	L_1	L_2
Month	Average High Temp °F
Jan → 1	79.9
Feb → 2	79.7
March → 3	78
April → 4	73.6
May → 5	68
June → 6	63.7
July → 7	62.4
Aug → 8	65.1
Sept → 9	68.9
Oct → 10	72.7
Nov → 11	75.7
Dec → 12	78.6

Amp $\frac{79.9-62.4}{2} = 8.75$

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

midline $= \frac{79.9+62.4}{2} = 71.15$

$$y = 8.75\cos\left(\frac{\pi}{6}(x-1)\right) + 71.15$$

Use this Rational Function: $y = \frac{x+1}{x^2-9} = \frac{x+1}{(x+3)(x-3)}$

Find the Vertical Asymptotes
zeros of the denominator

$x = \pm 3$

Find the x-intercepts:
zeros of the numerator.

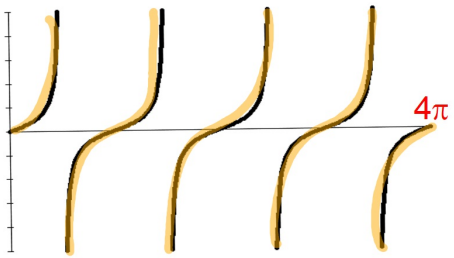
$x = -1$

$0 = \frac{x+1}{x^2-9}$

Sec 13-6: The Tangent Function

Graph the function $y=\tan\theta$

Use this Window: $x:[0,4\pi]$ $y:[-10, 10]$



What is the period of
the Tangent Function?

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