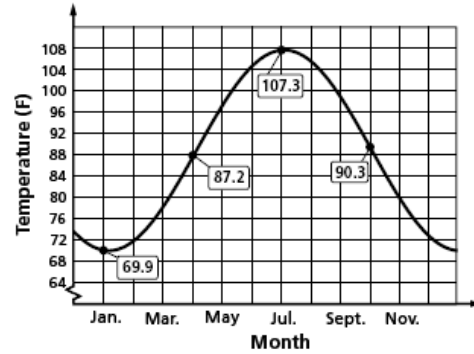


Trigonometric Functions

Modeling with Trig Functions Activity

1. A sine wave model for the average temperature T for Yuma, AZ, during month n of the year can be found using the data below and the graph at the right.

Month	Jan	Feb	Mar	Apr	May	Jun
Temperature (°F)	69.9	75.2	80.1	87.2	94.7	104.4
Month	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	107.3	106.1	101.0	90.3	77.3	69.0



- What is the amplitude?
- What is the period?
- What is the vertical shift?
- What is the phase shift?
- Enter your data into the graphing calculator and test your equation. Adjust it so that your equation matches the data.

Equation that works _____

2. The following table gives the height of the tide above the mean low low water (MLLW) at San Juan, PR, on November 21, 2008 (GMT).

Hour (GMT)	6	7	8	9	10	11	12	13	14	15	16	17	18
Feet above MLLW	1.49	1.67	1.72	1.64	1.56	1.32	1.12	1.01	0.98	1.00	1.07	1.27	1.48

Enter your data into the graphing calculator, sketch the picture and test your equation.

- What is the amplitude?
- What is the period?
- What is the vertical shift?
- What is the phase shift?
- Adjust it so that your equation matches the data.

Equation that works _____

3. The tables below show the number N of hours of daylight in Jacksonville, FL as a function of the number D of days after December 31st of a certain year. The data were collected on the $_$ rst day of each month over a two-year period. Neither year was a leap year.

D	1	32	60	91	121	152	182	213	244	274	305	335
N	10.23	10.77	11.55	12.5	13.37	13.98	14.08	13.62	12.77	11.88	10.98	10.35

D	366	397	425	456	486	517	547	578	609	639	670	700
N	10.23	10.77	11.53	12.48	13.35	13.98	14.08	13.62	12.78	11.88	10.98	10.35

Enter your data into the graphing calculator, sketch the picture and test your equation.

- What is the amplitude?
- What is the period?
- What is the vertical shift?
- What is the phase shift?
- Adjust it so that your equation matches the data.

Equation that works _____

4. Monthly mean temperatures for Memphis, Tennessee are given below:

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp °F	40	45	54	62	71	79	83	81	75	64	52	43

Enter your data into the graphing calculator, sketch the picture and test your equation.

- What is the amplitude?
- What is the period?
- What is the vertical shift?
- What is the phase shift?
- Adjust it so that your equation matches the data.

Equation that works _____