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Name: _____ Date: _____

MCR3U

Assignment: Modelling periodic data

Tides in the Bay of Fundy

Each day 100 billion tonnes of seawater flows in and out of the Bay of Fundy during one tide cycle more than the combined flow of the world's freshwater rivers! (Interactive demo: <http://www.bayoffundytourism.com/tides/interactive/nb.php>).

Your task: Click on the following link for high and low tides in the Bay of Fundy:

<http://www.lau.chs-shc.gc.ca/cgi-bin/tide-shc.cgi?queryType=showFrameset&zone=30&language=english®ion=5&stnnum=170>

Select a date during 2010, 2011, or 2012 and click "query."

Record the high and low tide data for two consecutive days in the tables below:

| | | |
|--------|--|--|
| Dates: | | |
|--------|--|--|

| | | | | | | | | |
|---------|--|--|--|--|--|--|--|--|
| Time: | | | | | | | | |
| Height: | | | | | | | | |

Determine the equation of a sinusoidal function that models your data.

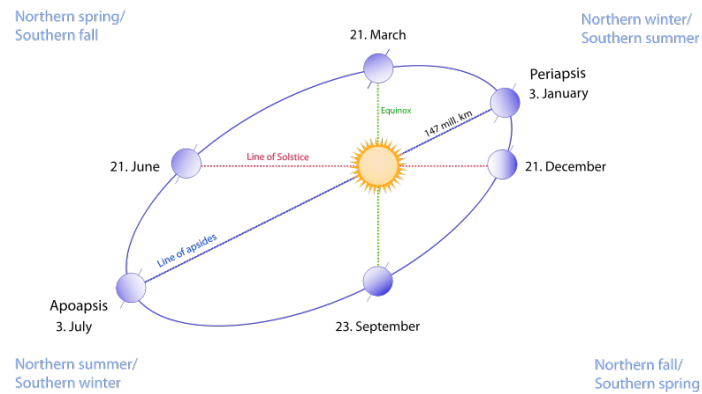
Graph the equation and data on the same set of axes, using an appropriate scale. Your graph should fill at least half a page on graph paper.

Describe any discrepancies between the model and the data.



Sunlight hours anywhere on Earth

Each day, as the Earth orbits the Sun, its tilted axis points more directly towards or away from the Sun. This causes the hours of sunlight to increase and decrease throughout the year!



Your task: Click on <http://sunrisehour.com/> and choose a city anywhere in the world:

| | |
|-------|--|
| City: | |
|-------|--|

Scroll along the x-axis and record the hours of daylight once per month for one year:

| | | | | | | |
|--------|--|--|--|--|--|--|
| Date: | | | | | | |
| Hours: | | | | | | |

| | | | | | | |
|--------|--|--|--|--|--|--|
| Date: | | | | | | |
| Hours: | | | | | | |

Determine the equation of a sinusoidal function that models your data.

Graph the equation and data on the same set of axes, using an appropriate scale. Your graph should fill at least half a page on graph paper.

