

Organize your backpack and math binder.

- ***Keep review sheets for each chapter.**
- ***Keep copy of unit circle.**
- ***Keep notes for chapters 1-6.**
- ***Recycle old homework assignments!!**



Periodic Behaviors and Models (sunrise/sunset investigation)

Periodic Behavior and Models

NAME:

PER:

Using the link <https://www.timeanddate.com/> (also posted in Google Classroom), complete the table below for **a location as given by your teacher**. After you have recorded the data and computed the decimal values, plot 2 sets of all 12 points in Desmos (using “month number” for the **x-axis** and “day length” for the **y-axis**. See instructions below for using a TABLE in Desmos.

*****Note: choose your data from 2021 and for the 15th of each month.*****

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x			y	
MONTH NUMBER	SUNRISE TIME	SUNSET TIME	DAY LENGTH (# of hours and minutes of sunlight)	DECIMAL VALUE FOR DAY LENGTH
1 (Jan)				
2 (Feb)				
3 (Mar)				
4 (Apr)				
5 (May)				
6 (June)				
7 (July)				
8 (Aug)				
9 (Sep)				
10 (Oct)				
11 (Nov)				
12 (Dec)				
13 etc...				

Do not enter any more values into this table.
Enter 2 sets of these points into Desmos.

Plot 24 data points on your graph

LOCATION:





→ Example for decimal value:
10:38 = 10 hours, 38 minutes
= 10.63 hours
(round to the nearest hundredth)

After your scatterplot is completed, create two possible models:

1. $y =$
2. $y =$

See Google Classroom for links!

Directions for creating a table and scatterplot in Desmos:

1. Go to <https://www.desmos.com/calculator>. Create an account so you can save your work by using an option from the upper right corner: **log in** or **sign up**. (Suggestion: use your **school Google account** to do so.)
2. Click on **+** toward the upper left corner and choose TABLE. Enter your points into the table. Edit color and shape of points using wheel icon  then click on colored dot at top of table for options. 
3.  Click on tools icon in upper right corner to choose **RADIAN** mode, **label your axes**, then size your window: $-1 \leq x \leq 25$ (*step= π*) and $-1 \leq y \leq 25$ (*no step*). **SAVE YOUR GRAPH...title it with location and your name!**
4. **Now create a model (equation) of the data** using what you know about trig functions and their graphs. Click on box 2 in left column (below your table) to enter equation, okay to use pi, decimals, fractions.
Use this format: $y = A\cos k(x - b) + h$ and $y = A\sin k(x - b) + h$ (*record equations in box provided above.*)
5.  Click on the share button in the upper right corner, copy the link, then submit it in Google Classroom (assignment listed under ch.7 in Classwork tab.) Be sure **location** is included in your Desmos title!

#1 → Chico

#2 → USA

#3-4 → other international locations
in the Northern Hemisphere

#5-8 → other international locations
in the Southern Hemisphere

ABSENT STUDENTS:

CHOOSE A LOCATION IN EUROPE

*Choose a place you would like to visit
someday or that just sounds interesting!
(Everyone must have a different location.)*

See Google Classroom for links!

timeanddate

Home ▾ World Clock ▾ Time Zones ▾ Calendar ▾ Weather ▾ Sun & Moon ▾ Timers ▾ Calculators ▾ Apps & API ▾ Free

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Current Time

Monday
Jan 3, 2022
Chico, California, USA
Set home location >

World Clock

Search for city or place...

Calculators & Timers

- Date-to-Date Calculator
- What Date is it in X Days?
- Countdown to Any Date
- Countdown to New Year
- Stopwatch
- Timer / Alarm

Time Zones

- Time Zone Map
- Time Announcements
- Time Zone Converter
- Meeting Planner: Find the Best Time across time zones
- Time Zone Abbreviations

Calendar

Full year 2022
 Month Jan

United States
[View calendar](#)
[Printable PDF Calendar](#)
[Create a Calendar](#)

Sun & Moon

- **Sunrise & Sunset**
- Moon Phases
- Moonrise & Moonset

Weather

46 °F

Apps

- iOS Apps
- Android Apps

Handwritten red text: Scroll down to Sunrise & Sunset in the left column

timeanddate

Home World Clock Time Zones Calendar Weather Sun & Moon Timers Calculators Apps & API Free Fun

Sun Calculator Moon Calculator Moon Phases Night Sky Meteor Showers Day and Night Map Moon Light Map Eclipses Live Streams Seasons

Home / Sun & Moon / Sun Calculator

Sunrise and Sunset Calculator — City Lookup

Search for a city's Sunrise and Sunset:
Sunrise, Sunset, dusk, dawn and twilight, Sun distance, day length, altitude, and much more...

Paris, France

Paris (department) Paris - France

Paris Ile-de-France - France

Paris 01 (5th order administrative division)

World Clock | Weather | Time Zone | Time Differences | Seasons | Eclipses

enter your location

January 2021 — Sun in Paris

< December **January** February >

Month: January Year: 2021 Go

2022	Sunrise/Sunset		Daylength		Astronomical Twilight		Nautical Twilight		Civil Twilight		Solar Noon	
Jan	Sunrise	Sunset	Length	Diff.	Start	End	Start	End	Start	End	Time	Mil. mi

choose 2021

Use data from the 15th of each month

timeanddate.com/sun/france/paris

CUSD Staff/Teacher GoGuardian Deb's web CPM CPM Ebook Classes Zoom Cengage WebAssign

2022	Sunrise/Sunset		Daylength		Astronomical Twilight		Nautical Twilight		Civil Twilight		Solar Noon	
Jan	Sunrise	Sunset	Length	Diff.	Start	End	Start	End	Start	End	Time	Mil. mi
14	8:39 am (122°)	5:20 pm (238°)	8:40:42	+2:01	6:46 am	7:13 pm	7:24 am	6:35 pm	8:03 am	5:56 pm	12:59 pm (19.9)	
15	8:38 am (122°)	5:21 pm (238°)	8:42:47	+2:05	6:45 am	7:14 pm	7:23 am	6:36 pm	8:02 am	5:57 pm	12:59 pm (20.1)	
16	8:38 am (122°)	5:23 pm (238°)	8:44:57	+2:09	6:45 am	7:15 pm	7:23 am	6:37 pm	8:02 am	5:58 pm	1:00 pm (20.3)	

hours + minutes (no seconds)

February 2021 — Sun in Paris

< January **February** March >

Month: February Year: 2021 Go

2021	Sunrise/Sunset		Daylength		Astronomical Twilight		Nautical Twilight		Civil Twilight		Solar Noon	
Feb	Sunrise	Sunset	Length	Diff.	Start	End	Start	End	Start	End	Time	Mil. mi
1	8:20 am (115°)	5:48 pm (245°)	9:27:56	+2:59	6:31 am	7:37 pm	7:08 am	7:00 pm	7:46 am	6:22 pm	1:04 pm (24.2°)	91.596
2	8:19 am (115°)	5:50 pm (245°)	9:30:58	+3:01	6:30 am	7:38 pm	7:07 am	7:01 pm	7:45 am	6:23 pm	1:04 pm (24.5°)	91.610
3	8:17 am (114°)	5:51 pm (246°)	9:34:02	+3:04	6:29 am	7:40 pm	7:06 am	7:03 pm	7:44 am	6:25 pm	1:04 pm (24.8°)	91.624

Repeat for 15th of each month

The image shows a browser window with the URL `desmos.com/calculator`. The page title is "Desmos | Graphing Calculator". The main content area is a graphing calculator interface with a coordinate plane. The x-axis and y-axis both range from -10 to 10. The interface includes a top navigation bar with "Untitled Graph", "desmos", "Create Account", and "Sign In" buttons. On the left, there is a sidebar with a "+" button and a table with two rows. On the right, there are window control buttons (maximize, zoom in, zoom out) and a settings icon. Several annotations are present: a green arrow points from the text "save file" to the "Untitled Graph" label; a blue arrow points from "add table" to the "+" button in the sidebar; a red arrow points from "Create an account using your CUSD Google account info" to the "Create Account" button; a cyan arrow points from "size window and label axes" to the window control buttons; and a purple handwritten note says "for x-axis 'step' you can type 'pi' to get π ".

save file

Untitled Graph

desmos

Create Account or Sign In

add table

Create an account using your CUSD Google account info

size window and label axes

for x-axis "step" you can type "pi" to get π

powered by desmos