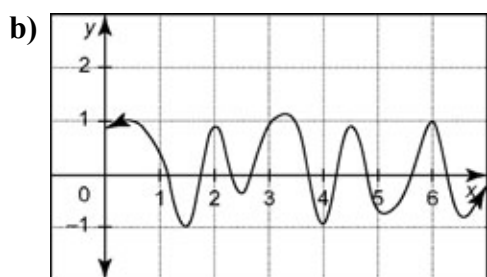
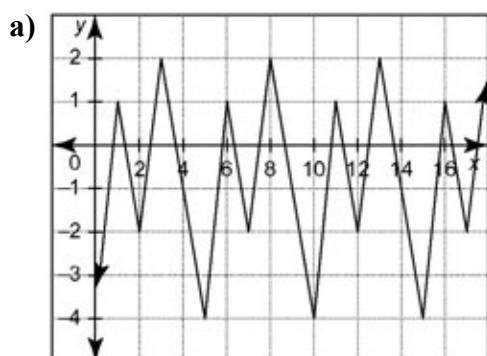


Chapter 5 Review

5.1 Periodic Functions, pages 232–238

1. Determine whether or not each graph is periodic. If it is, state the period, amplitude, domain, and range.



2. The table shows the number of daylight hours in Sault Ste. Marie, ON, on the first day of each month for one year.

Month	Daylight (h)	Month	Daylight (h)
Jan	8.7	Jul	15.7
Feb	9.7	Aug	14.8
Mar	11.2	Sep	13.3
Apr	12.9	Oct	11.7
May	14.3	Nov	10.0
Jun	15.6	Dec	8.8

- a) Sketch a graph of the data.
 b) Estimate the number of daylight hours on January 15th and on November 15th.
 c) Estimate the mean number of daylight hours for the year.

5.2 Circles and the Sine Ratio, pages 239–247

3. An angle with terminal point P is in standard position. For each point P, find the radius of the circle in exact form and the measure of the angle to the nearest tenth of a degree.
 a) P(5, 10) b) P(12, -16)
 c) P(-10, -1) d) P(-2, 3)
4. Find the coordinates of a terminal point, P(x, y), for each angle in standard position on the unit circle, to three decimal places.
 a) 5° b) 75° c) 175° d) 285°

5.3 Investigate the Sine Function, pages 248–253

5. The minute hand on a clock is 1 unit long and starts out pointing at the 9 on the clock face.
 a) What is the distance of the tip of the minute hand above or below the 9 after it rotates 100°? 270°? Round answers to three decimal places.
 b) Find an angle of rotation that results in the tip of the minute hand being 0.5 units below the 9.

5.4 Investigate Transformations of Sine Curves, pages 254–263

6. Determine the period, amplitude, phase shift, domain, range, and equation of the horizontal axis.

a) $y = 7 \sin(x + 90^\circ)$ b) $y = \frac{1}{2} \sin x - 2$

5.5 Make Connections With Sine Functions, pages 264–267

7. The height, h , in metres, of a point on the tip of a rotating blade on a wind turbine can be found using the equation $h(\theta) = 14.5 \sin(\theta - 180^\circ) + 41$, where θ is the angle the blade makes with the horizontal.
 a) What is the minimum height of the point? At what angle does this height occur?
 b) What is the length of the blade?
 c) How would the function and graph change if the blade rotated in the opposite direction?