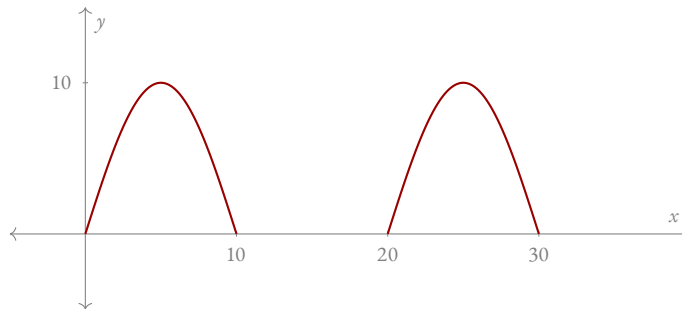


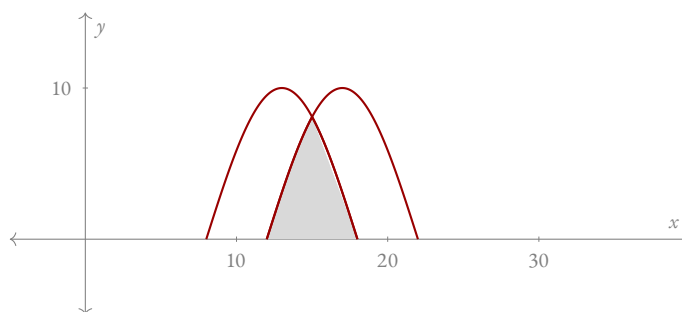
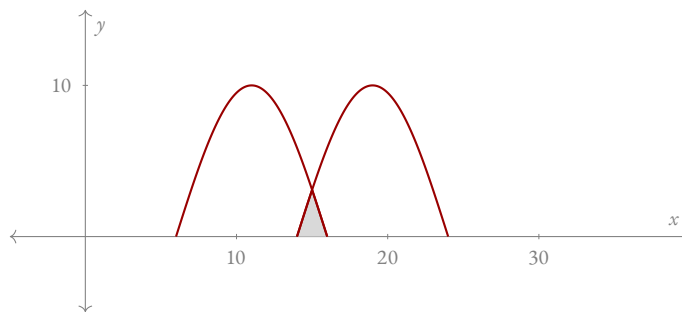
NMU Math & CS Department

Problem of the Month, January 2023

Suppose there are two sine waves 10 meters wide with 10 meter amplitude, and they are moving towards one another at a constant rate of 1 meter per second.



Suppose they don't interact as they pass each other, and consider the shaded region of their overlap.



What is greatest rate of change experienced by the area of the shaded region?
Make sure to include the correct units, and explain your work.