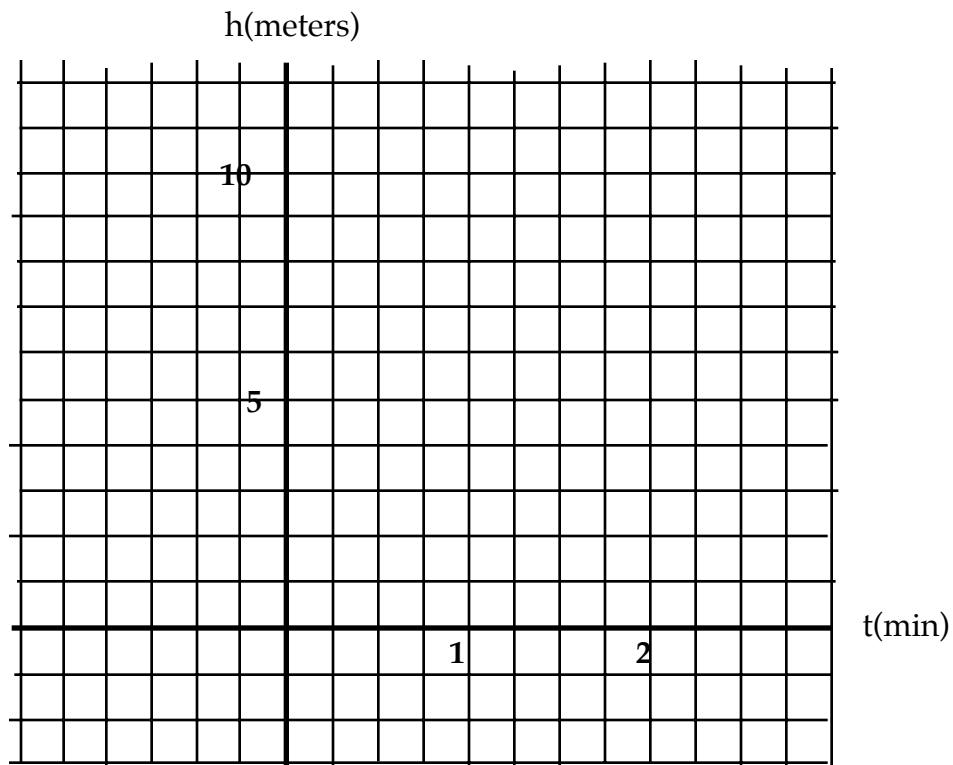
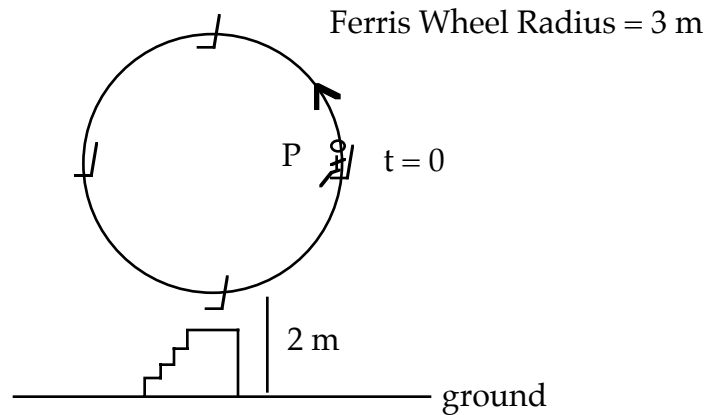


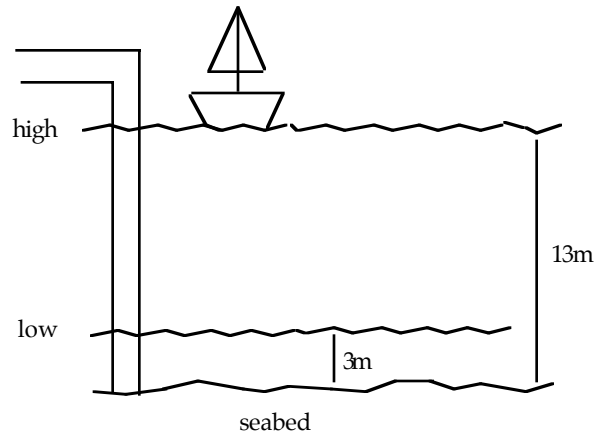
Trig Applications 90

Many natural phenomena, which repeat over time, can be represented by a sine curve or a cosine curve.

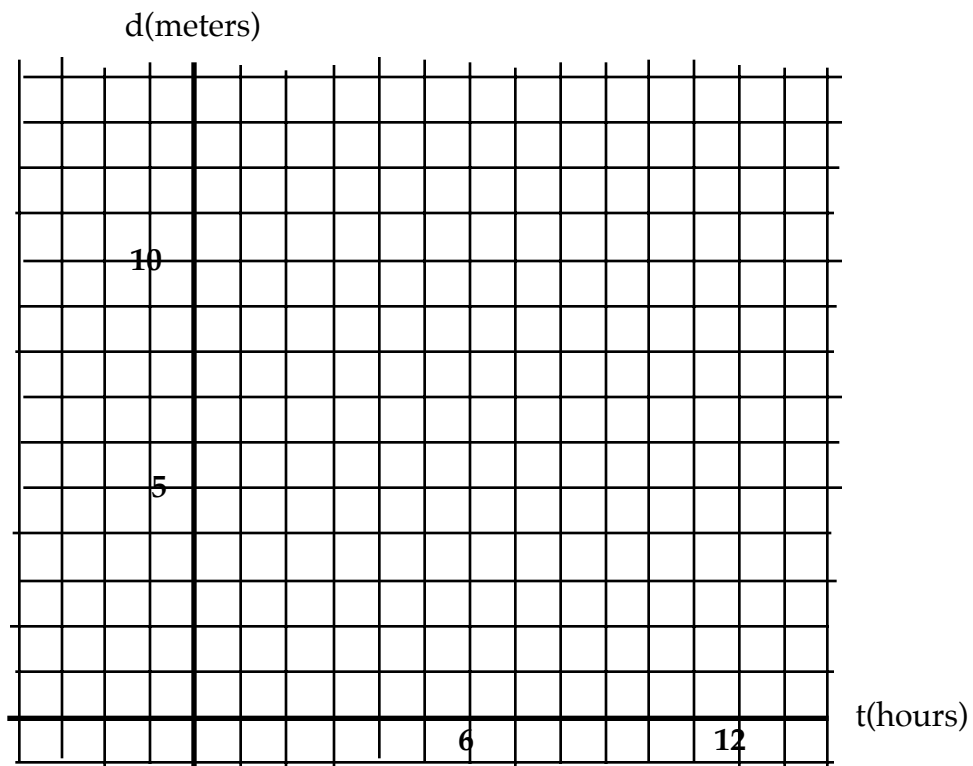
- 1) Find the equation for the height $h(t)$ of the person P above the ground at time t . Graph the equation. Assume that at time $t = 0$, the person is in the position shown. The wheel moves counter-clockwise. The period (time for one rotation) is 2 minutes.



2) High tide occurs at the time $t = 0$. There are two high tides every day.

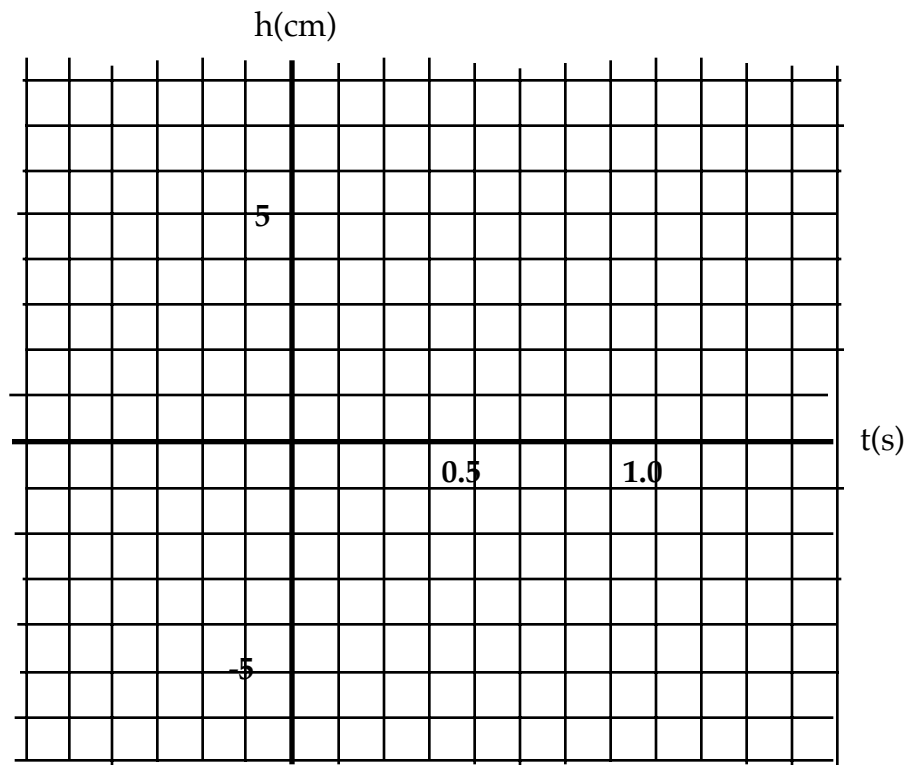
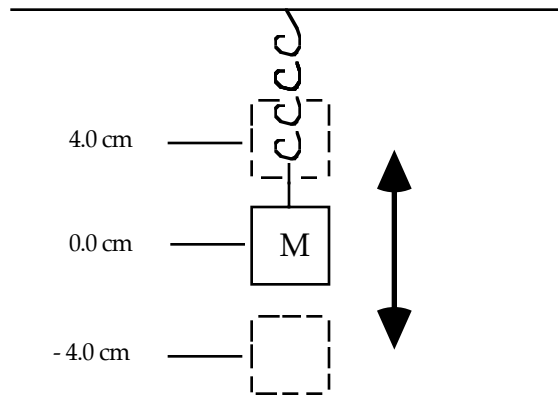


Write down the equation for the depth of the water $d(t)$ and graph.



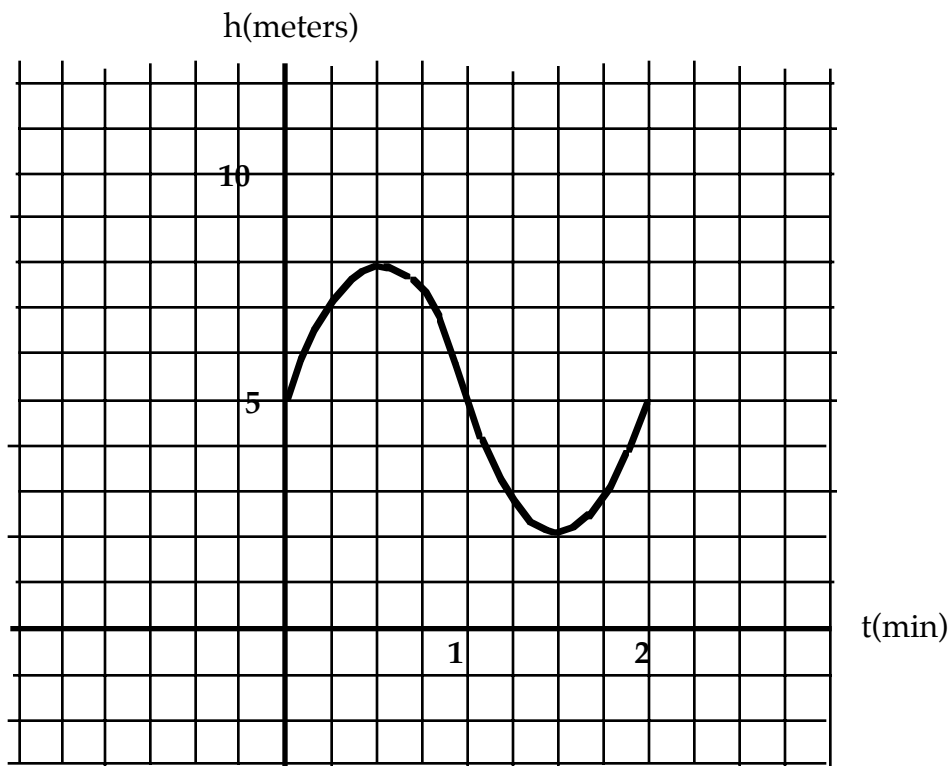
3) A mass is suspended from the ceiling by a spring. The mass is pulled down 4 cm. When it is let go at time $t = 0$, the mass moves up and

down with an amplitude of 4 cm. The period is 0.5 seconds. Find the equation of the motion and graph.

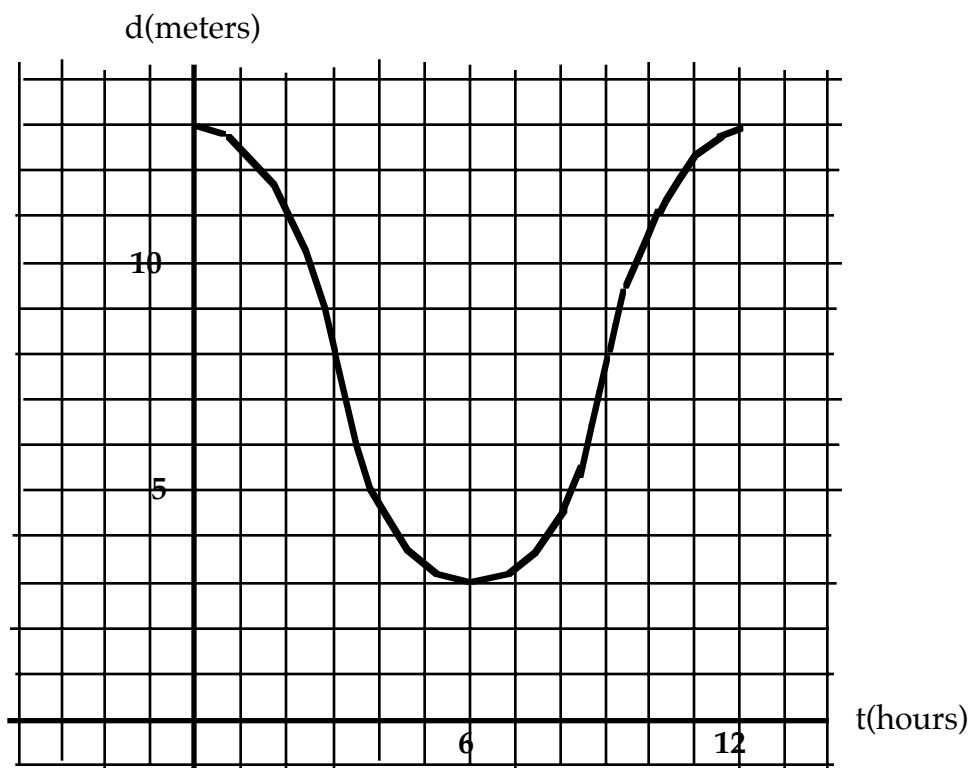


Answers:

1) $h(t) = 3 \sin (\pi t) + 5$



2) $d(t) = 5\cos((\pi/6)t) + 8$



3) $d(t) = -4 \cos(4\pi(t))$

