Chapter 8

Learning Target 3
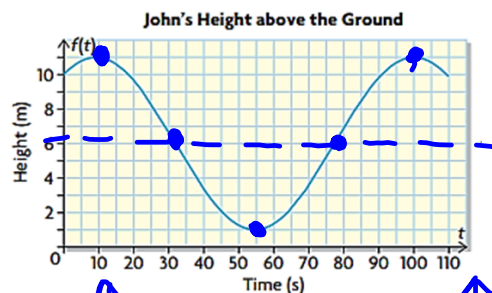
I can use a table and graph to write an equation for an application problem.

1.) John is riding a Ferris wheel. The graph shows John's height above the ground in terms of time.

COS

Amplitude: 5

Period: $100 - 10 = \boxed{90}$

Horizontal Shift: ℓ 10

Vertical Shift: up 6

$A : 5$
$B : \pi/45$
$C : -10$
$D : +6$

Equation: $y = 5 \cos \dfrac{\pi}{45}(x - 10) + 6$

John's Height above the Ground

$90 = \dfrac{2\pi}{B}$

$\dfrac{90 B}{90} = \dfrac{2\pi}{90}$

$B = \pi/45$

2.) Ms. Boynton is helping her friend move and is pulling a trailer with a load of furniture. Ms. Boynton encounters a squirrel in the road and has to swerve to avoid hitting it. As a result, the furniture on the trailer shifted, causing the rear end of the trailer to swing left and right. The graph shows the distance between the tail light and the curb in terms of time.

Amplitude: _____ Sin .5 or 1/2

Period: _____ 2

Horizontal Shift: _____ ∅

Vertical Shift: _____ up 1.5

Distance Between the Tail Light and the Curb
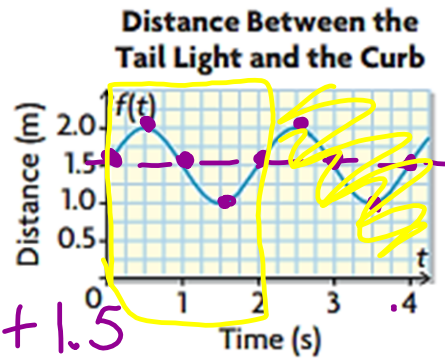
Equation: _____ $y = .5 \sin \pi(x) + 1.5$

A: .5 B: π C: ∅ D: +1.5

3.) The average monthly Fahrenheit temperatures for a city are shown in the table below. Write an equation to model the data. (Month 1 = January, Month 2 = February, etc.)

Month	1	2	3	4	5	6	7	8	9	10	11	12
Temperature (°F)	38	39	42	47	52	55	56	55	51	47	42	39	38

midline   max   midline   min

4.) The average monthly Fahrenheit temperatures for a city are shown in the table below. Write an equation to model the data. (Month 1 = January, Month 2 = February, etc.)

Month	1	2	3	4	5	6	7	8	9	10	11	12
Temperature (°F)	41	43	48	56	64	69	71	69	63	56	48	43