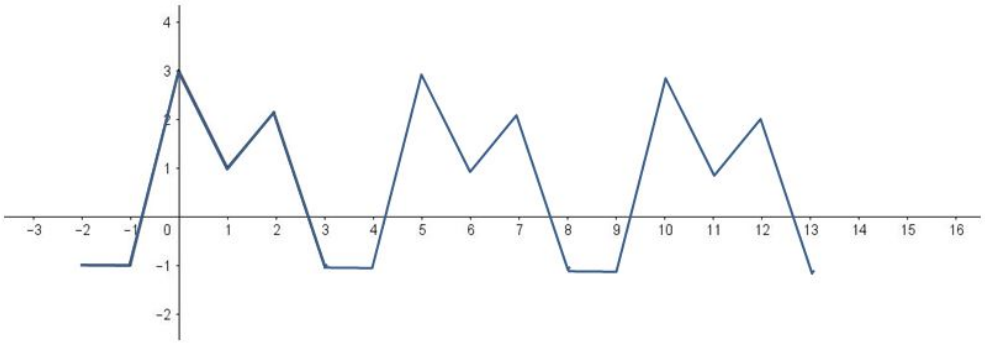
Periodic Function – Supplemental Questions with Solutions

1. Add two cycles **AND** find $f(-2), f(4)$ and $f(11)$.



$f(-2) = -1$

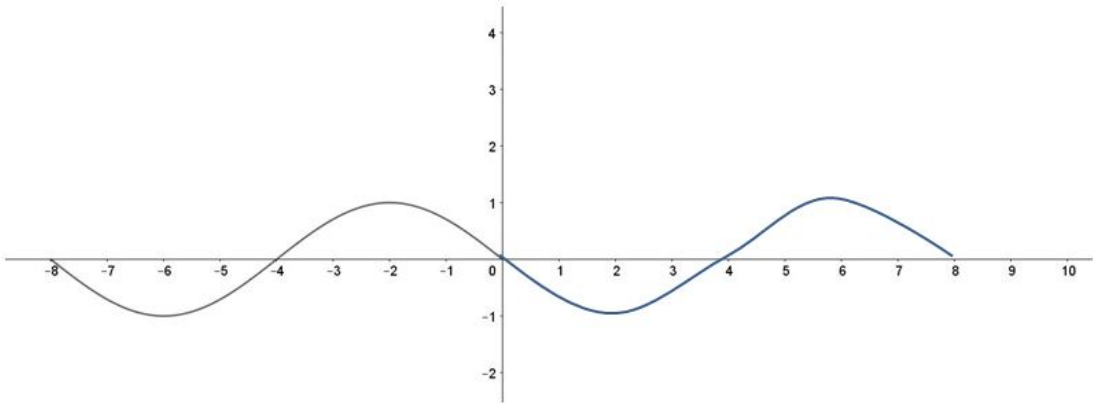
$f(4) = -1$

$f(11) = 1$

Period = 5 (13-8)

Subtract each point in the figure by 5 to graph (set down points and then join them)

2. A ski resort designs its mogul course according to the following periodic function that shows height (y) over horizontal distance (x). One cycle is given.



A) Extend the function by another cycle

Period for one cycle = 8

B) At what horizontal distance(s) will the maximum height be reached?

When x = 6 and every 8 after this (14, 22, 30 …)

C) Over what distances will a skier be going up a mogul?

The skier goes up from x = 2 to x = 6 [2, 6]

D) What will be a skier's height at 14 meters, 26 meters and at 60 meters?

$f(14):\ 14-8=6$

$\therefore f(14)=f(6)=1$

$f(26):\ 26-8=18-8=10-8=2$

$\therefore f(26)=f(2)=-1$

$f(60):60-8-8-8-8-8-8-8-8=4\ \left(\text{recall, subtract period until it's readable from the graph}\right)$

$\therefore f(60)=f(4)=0$