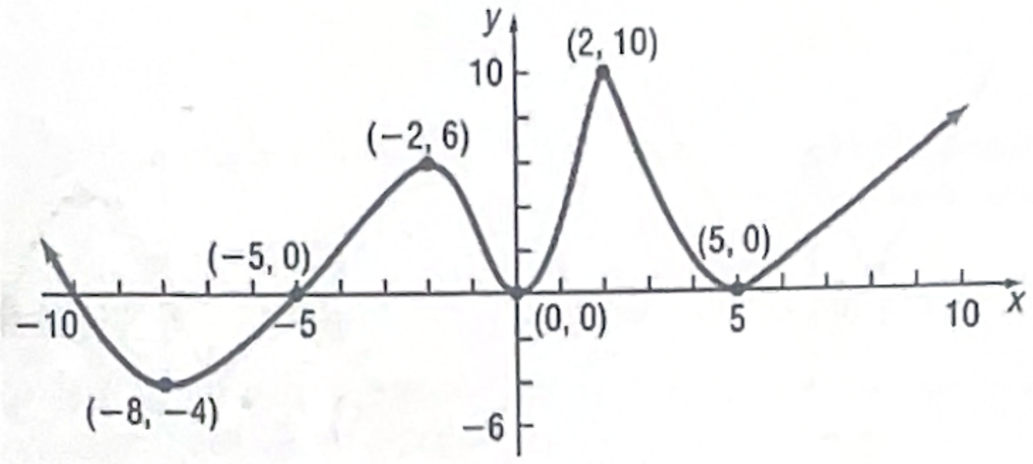


Ex. 1 The graph of $f(x)$ is given above. Use the graph to answer the following:

a) Determine $f(0)$ and $f(2)$?

$f(0)=0 \quad f(2)=10$

b) Is $f(-6)$ positive or negative? Explain your reasoning.

$f(-6)<0$ since the y-value lies below the x-axis.

c) On what interval(s) is $f(x)$ increasing? How do you know?

$f(x)$ is increasing on $(-8,-2)\cup(0,2)\cup(5,\infty)$ because the slope of $f(x)$ is positive.

d) For which x-values does $f(x)=0$?

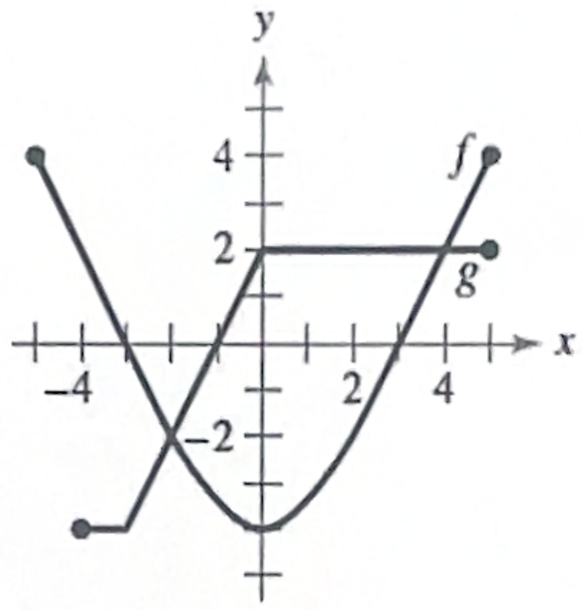
$f(x)=0 \quad @ \quad x=-10,-5,0,5$

e) For how many x-values does $f(x)=4$? Explain.

$f(x)=4$ six time, $f(x)$ would intersect with the horizontal line $y=4$ at six values.

f) Find the average rate of change of $f(x)$ on $[-8,2]$.

$$\frac{f(2)-f(-8)}{2-(-8)}=\frac{10-(-4)}{10}=\frac{14}{10}=\frac{7}{5}$$



Ex. 2 Use the graphs of f and g to answer the following questions:

a) Evaluate $g(f(3))$.

$f(3) = 0$

$g(0) = 2$

$g(f(3)) = 2$

b) For what value(s) of x does $f(x) = g(x)$?

$f(x) = g(x)$ @ $x = -2, 4$

c) For what value(s) of x is $f(x) > g(x)$?

$f(x) > g(x)$ on $[-4, -2) \cup (4, 5]$