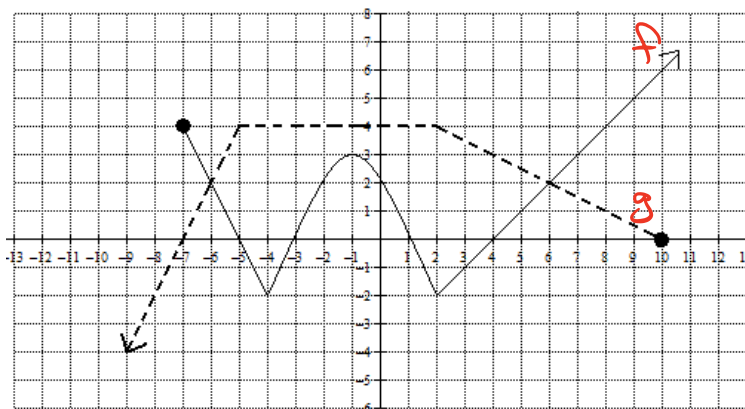


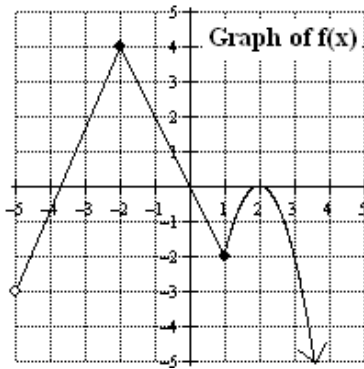
Homework 1.4

 $f(x)$ is the solid line graph below. $g(x)$ is the dashed line graph below.

Identify each of the following values of x . Completely explain your reasoning for why you chose the values that you chose. Leave your answers in interval notation, if necessary.

<p>1. Intervals where $g(x) < f(x)$</p> <p>If $g(x) < f(x)$ then the graph of g is below the graph of f.</p> <p>$[-7, -4) \cup (6, 10]$</p>	<p>2. Intervals where $g(x) > f(x)$</p> <p>If $g(x) > f(x)$ then the graph of g is above the graph of f.</p> <p>$(-4, 6)$</p>
<p>3. Values of x where $f(x) = g(x)$</p> <p>If $g(x) = f(x)$ then the graph of f and g are intersecting each other</p> <p>$x = -4, 6$</p>	<p>4. The value(s) of x such that $g(x) = 0$</p> <p>If $g(x) = 0$, then the graph of g is on the x-axis.</p> <p>$x = -7, 10$</p>
<p>5. The value(s) of x such that $g(x) \cdot f(x) > 0$</p> <p>If $g(x) \cdot f(x) > 0$, the graphs of $g(x)$ and $f(x)$ are on same side of the x-axis.</p> <p>$[-7, -5) \cup (-3, 1) \cup (4, 10)$</p>	<p>6. The value(s) of x such that $g(x) \cdot f(x) < 0$</p> <p>If $g(x) \cdot f(x) < 0$, the graphs of $g(x)$ and $f(x)$ are on opposite sides of the x-axis.</p> <p>$(-5, -3) \cup (1, 4)$</p>

Pictured below is the graph of a function, $f(x)$, and a table of values representing a discrete function, $g(x)$.



x	$g(x)$
-5	2
-2	4
0	-2
1	-5
3	0

7. What is the value of $4[-2f(-1) - 2g(1)]$?

$$\begin{aligned}
 &= 4[-2(2) - 2(-5)] \\
 &= 4[-4 + 10] \\
 &= 4[6] \\
 &= 24
 \end{aligned}$$

8. If $p(x) = ax^2 - 3x$, then for what value(s) of a is $p(2) = f(1) - g(-2)$?

$$\begin{aligned}
 a(2)^2 - 3(2) &= -2 - 4 \\
 a(4) - 6 &= -6 \\
 4a &= 0 \\
 a &= 0
 \end{aligned}$$

9. Identify the interval(s) on which $f(x)$ is increasing.

$$(-5, -2) \cup (1, 2)$$

10. Identify the interval(s) on which $f(x)$ is decreasing.

$$(-2, 1) \cup (2, \infty)$$

11. Identify the interval(s) on which $f(x)$ is constant

There is no intervals where the graph $f(x)$ is constant.