Homework solution I

1.
(a) $f(-1) = -2$
(b) $f(2) \approx 2.8$
(c) if $f(x) = 2, \quad x = 1, -3$
(d) if $f(x) = 0, \quad x \approx 0.3, -2.5$
(e) The domain of f is $[-3, 3]$ and the range os f is $[-2, 3]$
(f) f is increasing on $[-1, 3]$

2.
(a)$f(-4) = -2, \quad g(3) = 4$
(b)When $x = -2, 2 \quad f(x) = g(x)$
(c)if $f(x) = -1, \quad x = -3, 4$
(d)f is decreasing on $[0, 4]$
(e)The domain of f is $[-4, 4]$ and the range of f is $[-2, 3]$
(f)The domain of g is $[-4, 3]$ and the range of g is $[0.5, 4]$

6. Yes, the curve is the graph of a function because it passes the Vertical Line Test. The domain is $[-2, 2]$ and the range is $[-1, 2]$.

8. No, the curve is not the graph of a function since for $x = 0, \pm 1, \pm 2$, there are infinitely many points on the curve.

10. The salesman travels away from home from 8:00Am to 9:00 Am and is then stationary until 10:00Am. The salesman travels farther away from 10:00Am until noon. There is no change in his distance from home until 1:00 pm, at which time the distance from home decreases until 3:00 Pm. Then the distance starts increasing again,reaching maximum distance away from home at 5:00 Pm. There is no change from 5:00 Pm to 6:00 Pm, and then the distance decreases rapidly until 7:00 Pm, at which time the salesman reaches home.