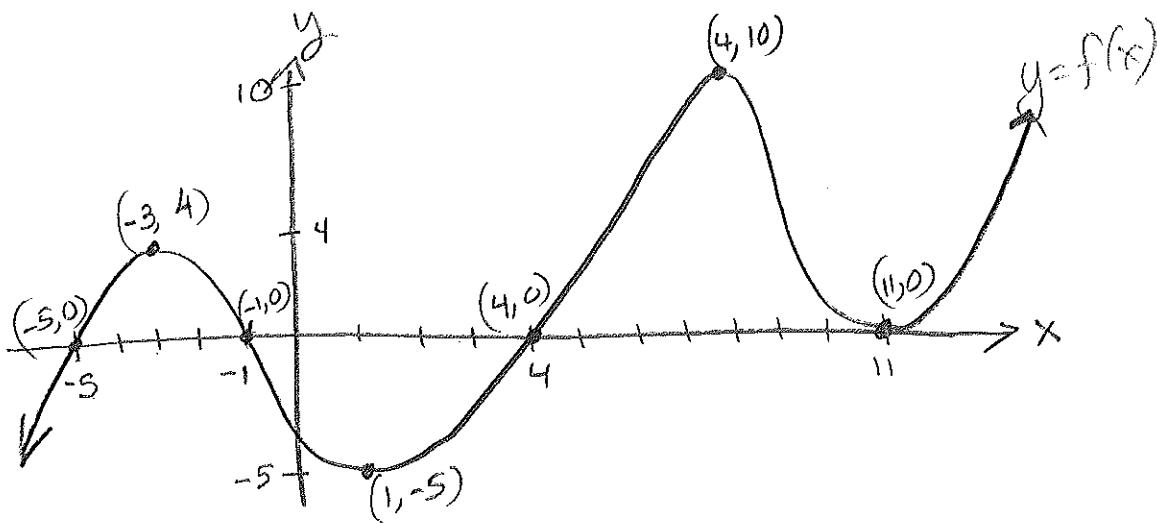


1.3 Model Problems (9/20/16)



- (a) Is f increasing on the interval $(-3, 1)$? No-decreasing
- (b) Is f decreasing on the interval $(11, \infty)$? Yes
- (c) List the interval(s) on which f is increasing.
 $(-\infty, -3), (1, 4), (11, \infty)$
- (d) List the interval(s) on which f is decreasing.
 $(-3, 1), (4, 11)$
- (e) List any local maximas.
at $x = -3$, there is a maxima of 4
at $x = 4$, there is a maxima of 10
- (f) List any local minimas.
at $x = 1$, there is a minima of -5
at $x = 11$, there is a minima of 0

22) a) intercepts: $x = -1, 1$
 $y = 2$

b) $D: [-3, 3]$ $R: [0, 3]$

c) $I: (-1, 0), (1, 3)$

$D: (-3, -1), (0, 1)$

d) even fcn b/c symmetric about y-axis

24) a) $x = 1$ is the only intercept

b) $D: (0, \infty)$ $R: (-\infty, \infty)$

c) $I: (0, \infty)$

d) neither

34) $f(x) = 2x^4 - x^2$

$$f(-x) = 2(-x)^4 - (-x)^2 \\ = 2x^4 - x^2 = f(x)$$

Since $f(-x) = f(x)$, it's even

36) $h(x) = 3x^3 + 5$

$$h(-x) = 3(-x)^3 + 5 \\ = -3x^3 + 5$$

$$h(-x) \neq h(x)$$

$$h(-x) \neq -h(x)$$

\therefore neither