

# UNIT #1 DAY #3 HOMEWORK I (SOLUTIONS)

P. 81 #31-43 odd, 43

#31.  $(0, 5)$   $(\frac{16}{3}, 0)$

#33.  $(-5, 0)$   $(1, 0)$   $(0, -1)$

#35.  $(0, 0)$

#37.  $(-3, 0)$   $(0, 0)$

#39.  $(0, -2)$   $(8, 0)$

#41.  $(0, 3)$   $(1, 0)$   $(3, 0)$

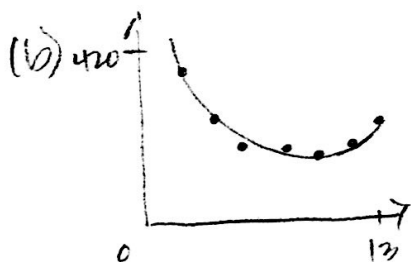
#43.  $(0, 0)$   $(2, 0)$

#43. (a)

Year	2004	2007	2008	2009
New	410.52	290.88	198.08	132.12

2010	2011	2012	2013
93	80.72	95.28	136.68

The model fits the data rather closely.



The model fits the data well.

(c) 2015  $\rightarrow$  300,000 homes  
 2017  $\rightarrow$  157,680 homes  
 Yes, this seems reasonable.

(d) 2009  $\hat{=}$  2012  
 $x=9$        $x=12$

# UNIT #1: DAY #3 HOMEWORK #2 (SOLUTIONS)

P. 118 # 1, 6, 7, 9, 15, 17, 21, 25, 35, 43, 63, 67, 69, 71, 75, 81, 93

#1. decreasing

#2. even

#3.  $[1, 4]$

#4. no

#5. relative maximum

#6.  $[5, 6)$

#7.  $D: (-\infty, \infty)$

$R: (-\infty, 1]$

$f(0) = 1$

#9.  $D: [-4, 4]$

$R: [0, 4]$

$f(0) = 4$

#15.  $D: (-\infty, \infty) \rightarrow$  can input any number; no  $\sqrt{\quad}$  or  $\frac{1}{x}$   
 $R: [0, \infty) \rightarrow$  has to be all positives including zero

#17. (a)  $(-\infty, \infty)$

(b)  $[-2, \infty)$

(c)  $|x-1|-2=0$

$|x-1|=2$

$x-1=2$

$x=3$

$x-1=-2$

$x=-1$

(d) x-intercepts

(e)  $f(0) = 10 - 11 - 2$

$= 1 - 2$

$= -1$

(f) y-intercept

(g)  $-2, (1, -2)$

(h)  $0; (-1, 0)$

(i)  $f(-3) = 1 - 3 - 11 - 2$

$= 4 - 2$

$= 2$

$(-3, 2)$

#21. Not a function. Solve for  $y$  and graph both resulting functions.

#25. Increasing:  $(-\infty, 0)$   $(2, \infty)$   
Decreasing:  $(0, 2)$

#35. Relative minimum:  $(3, -9)$

#43. Relative minimum:  $(1, -2)$   
Relative maximum:  $(-1, 2)$

#49. Even

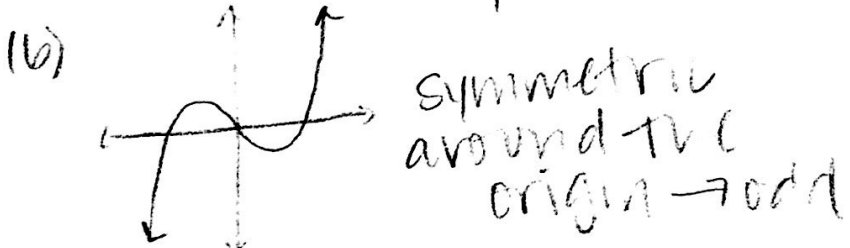
#67. Even

#69. Neither

#71. Neither

#75. (a)  $(2, -9)$   
(b)  $(2, 9)$

#81.  $g(x) = x^3 - 5x$   
(a)  $y = x^3 - 5x \rightarrow -y = (-x)^3 - 5(-x)$   
 $-y = -x^3 + 5x$   
 $y = x^3 - 5x$  ✓ original  $\rightarrow$  odd



(c) table values mirror with a sign change  $\rightarrow$  odd

#92.  $h = -x^2 + 4x - 7$ ;  $1 \leq x \leq 3$