7, 10, 15, 17 a, b, c only

pg 17 # 7, 10, 15, 17
20, 28, 59, 60, 64
67, 68

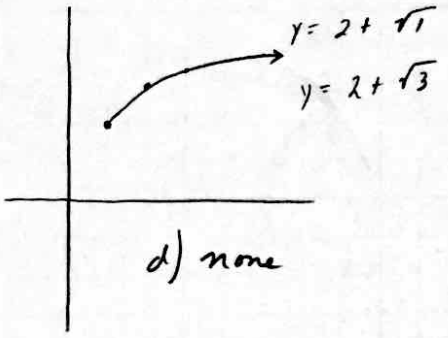
HWC03

7) $y = 2 + \sqrt{x-1}$

Domain: $\sqrt{x-1} \geq 0$

$x \geq 1$

Range: $y \geq 2$



d) none

10) $y = \frac{1}{x-2}$

a) domain $\mathbb{R} \mid x \neq 2$

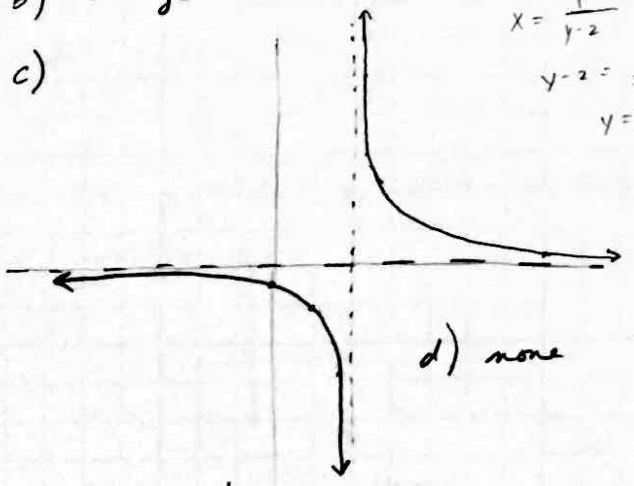
b) Range: $\mathbb{R} \mid y \neq 0$ $\Rightarrow y = \frac{1}{x-2}$

$x = \frac{1}{y-2}$

$y - 2 = \frac{1}{x}$

$y = \frac{1}{x} + 2$

c)



d) none

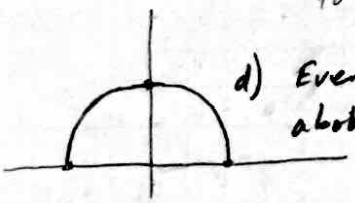
15) $y = \sqrt{4-x^2}$

Domain: $\sqrt{4-x^2} \geq 0$

$x \leq 2$

$x \geq -2$

Range: $0 \leq y \leq 2$ (domain limited to $-2 \leq x \leq 2$)

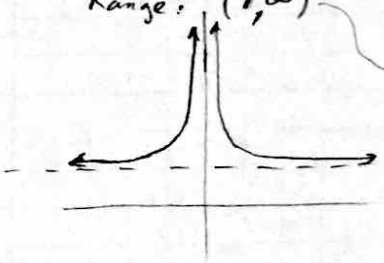


d) Even, Symmetric about the y-Axis

17) $y = 1 + \frac{1}{x^2}$

Domain: $x \neq 0$ or $(-\infty, 0) \cup (0, \infty)$

Range: $(1, \infty)$



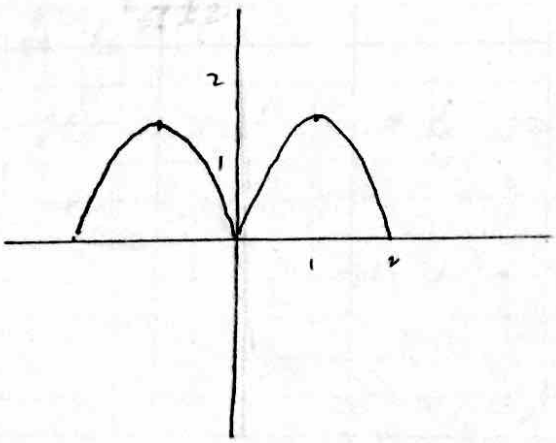
d) Even, symmetric about the y-axis

20) $y = x + x^2$

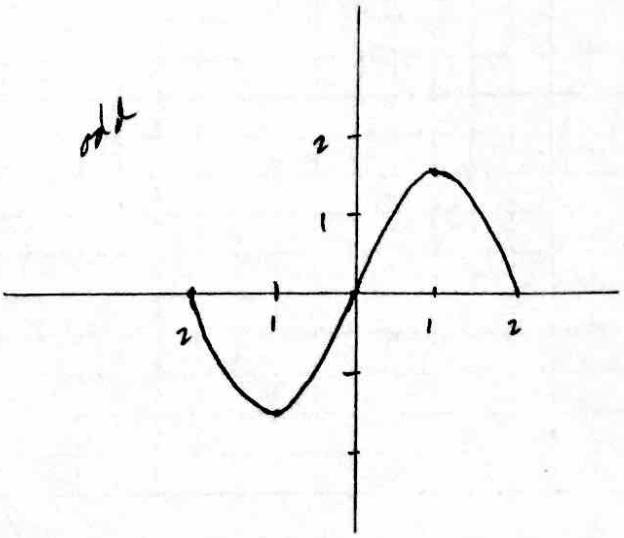
Neither - Sum of even and odd powers

28) $y = \frac{1}{x^2-1}$ even, only has even powers of x.

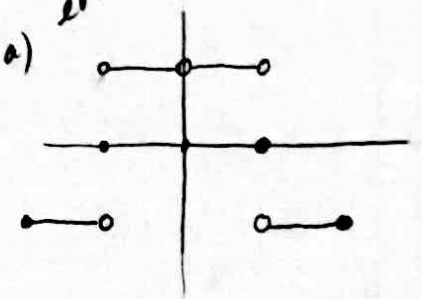
59)



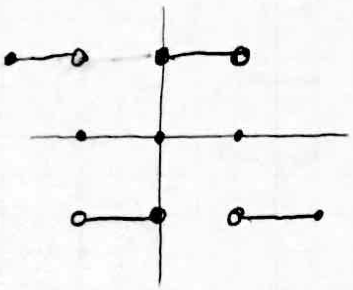
odd



60) a) even



b)



64)

Year	Amount
1990 (20)	74240
1991 (21)	92570
1992 (22)	97225
1993 (23)	110 551
1994 (24)	111 561
1995 (25)	148226

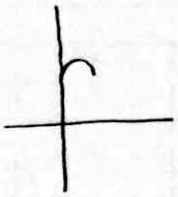
$y = 27.109x^{2.65}$

In 2000 ~ 222579.33

$y = 12577.97x - 177275.524$

$y = 200063.58$

67) $y_1 = \sqrt{x}$ $y_2 = \sqrt{1-x}$ $y_3 = y_1 + y_2$



Domain $y_1 = [0, \infty)$

Domain $y_2 = (-\infty, 1]$

Domain $y_3 = [0, 1]$

Domain of sum, difference and multiply is the intersection of the two domains

Domain of division is the intersection minus the zeros

68) a) Yes, since

$(f \cdot g)(-x)$

$= f(-x) \cdot g(-x)$

By definition $= f(x) \cdot g(x) = f(g(x))$

so the product will always be even.

b) The product will be even

since $(f \cdot g)(-x) = f(-x) \cdot g(-x)$

$\Rightarrow (-f(x) \cdot -g(x))$ negative · negative = pos.

$\Rightarrow f(x) \cdot g(x)$

$= (f \cdot g)(x)$