3, 5, 7, 11-19 odd 23, 25, 31

$y - y_1 = m(x - x_1)$

3. $y = g(x)$

$g(0)$	$g(1)$	$g(2)$	$g(3)$	$-g(4)$	$g(5)$
$y = g(0)$	$y = g(1)$	$y = g(2)$	$y = g(3)$	$y = g(4)$	$y = g(5)$
$=$	$=$	$=$	$=$	$=$	$=$
3	1	2	3	1	1

$(0,3)\ (1,2)$

$m = \frac{2-3}{1-0}$

$= \frac{-1}{1}$

$= -1$

$m = -1$

$y - 3 = -1(x - 0)$

$y - 3 = -1x + 0$

$y - 3 = -1x$

$+3 \quad +3$

$y = -1x + 3$

$y = -x + 3$ or $y = 3 - x$

$(1,1)\ (3,3)$

$m = \frac{3-1}{3-1}$

$= \frac{2}{2}$

$= 1$

$m = 1$

$y - 1 = 1(x - 1)$

$y - 1 = 1x - 1$

$+1 \quad +1$

$y = 1x + 0$

$y = x + 0$ or $y = x$

$$g(x) = \begin{cases} y = 3 - x, & x < 1 \\ y = x, & 1 < x \leq 3 \\ 1, & x > 3 \end{cases}$$

5. $h(x) = x - 2$

$f(0) = 2$ $\quad f(1) = 3$ $\quad f(2) = 2$ $\quad f(3) = 1$ $\quad g(0) = 2$ $\quad g(1) = 1$ $\quad g(2) = 0$

$h(3)$

$h(3) = 3 - 2$

$h(3) = 1$

$h(4)$

$h(4) = 4 - 2$

$h(4) = 2$

$h(2)$

$h(2) = 2 - 2$

$h(2) = 0$

$h(1)$

$h(1) = 1 - 2$

$h(1) = -1$

5a.

$f(f(1))$

$f(3) = 1$

$f(f(1)) = 1$

$f(g(2))$

$f(0) = 2$

$f(g(2)) = 2$

$f(g(0))$

$f(2) = 2$

$f(g(0)) = 2$

$f(g(1))$

$f(1) = 3$

$f(g(1)) = 3$

5b. $g(f(2))$

$g(2) = 0$

$g(f(2)) = 0$

$g(f(3))$

$g(1) = 1$

$g(f(3)) = 1$

$g(g(0))$

$g(2) = 0$

$g(g(0)) = 0$

$g(f(0))$

$g(2) = 0$

$g(f(0)) = 0$

5c. $f(h(3))$

$f(1) = 3$

$f(h(3)) = 3$

$f(h(4))$

$f(2) = 2$

$f(h(4)) = 2$

$h(g(0))$

$h(2) = 0$

$h(g(0)) = 0$

$h(g(1))$

$h(1) = -1$

$h(g(1)) = -1$

7a. $f(x)$, $g(x)$, $h(x)$

x	-1	0	1	2	3	4
f(x)	3	3	-1	0	1	1
g(x)	-2	0	1	2	3	4
h(x)	-3	-2	-1	0	1	2

$g(-1) = (-1)^2 - 3$
$= 1 - 3$
$= -2$

$h(-1) = -1 - 2$
$= -3$

$g(0) = |0|$
$= 0$

$h(0) = 0 - 2$
$= -2$

$f(1) = 1 - 2$
$= -1$

$g(1) = |1|$
$= 1$

$h(1) = 1 - 2$
$= -1$

$f(2) = 2 - 2$
$= 0$

$g(2) = |2|$
$= 2$

$h(2) = 2 - 2$
$= 0$

$f(3) = 1$

$g(3) = |3|$
$= 3$

$h(3) = 3 - 2$
$= 1$

$f(4) = 1$

$g(4) = |4|$

$h(4) = 4 - 2$
$= 2$

7b. $g(1) = 1$ $\quad h(1) = -1$ $\quad f(1) = -1$ $\quad f(2) = 0$

$g(3.5) = 3$

$f(g(1))$ $\quad f(h(1))$ $\quad h(f(1))$ $\quad f(f(2))$ $\quad g(g(3.5))$

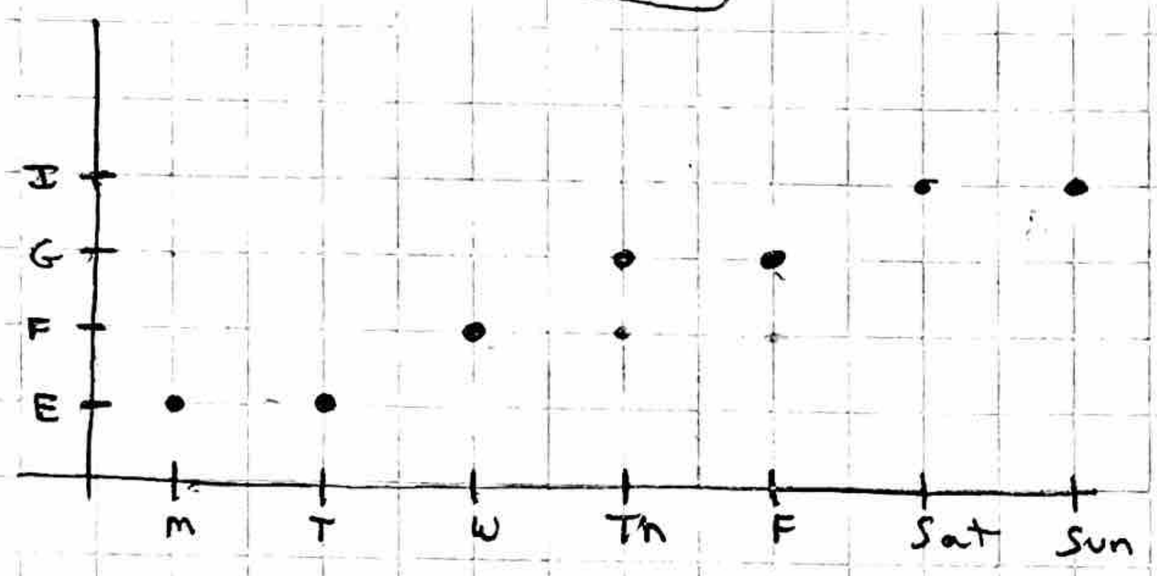
$=$ $\quad =$ $\quad =$ $\quad =$ $\quad =$

$f(1) = -1-2$ $\quad f(-1) = 3$ $\quad h(-1) = -1-2$ $\quad f(0) = 3$ $\quad g(3) = 3$

$=$ $\quad h(-1) = -3$ $\quad =$ $\quad g(3) = 3$

$f(g(1)) = -1$ $\quad f(h(1)) = 3$ $\quad h(f(1)) = -3$ $\quad f(f(2)) = 3$ $\quad g(g(3.5)) = 3$

9.



$L(d) =$

England $\quad M \le d \le T \rightarrow M$ or T

France $\quad d = W \rightarrow$

Germany $\quad Th \le d \le F \rightarrow Th$ or F

Italy $\quad Sat \le d \le Sun \rightarrow Sat$ or Sun

11. $y = x^2$ $\quad (2,1)\ (3,2)$ $\quad m = \dfrac{2-1}{3-2} = \dfrac{1}{1} = 1$ $\quad m = 1$

$y - y_1 = m(x - x_1)$

$y - 1 = 1(x-2)$

$y - 1 = x - 2$

$+1 \quad +1$

$y = x - 1$

$$f(x) = \begin{cases} x^2, & x < 2 \\ x - 1, & x > 2 \end{cases}$$

13a. $B(x)$ = area

Area of Rectangle

area = $L \cdot W$, L is length

W is width

$B(x) = L \cdot w$, $l = x$

$w = y$

$P(x, 1/x)$

$$\boxed{B(x) = \frac{1}{x} \cdot x}$$

$B(1) = \frac{1}{1} \cdot 1$

$B(2) = \frac{1}{2} \cdot 2$

$B(3) = \frac{1}{3} \cdot 3$

(1) (1) (1)

13b. Show that $B(x) = 1$ for all $x > 0$

Validate

$B(x) = P(x) \cdot x = B(x) = \frac{1}{x} \cdot x$

$B(0) = \frac{1}{0} \cdot 0 =$ undef

$$\boxed{B(x) = \frac{1}{x} \cdot x = 1 \quad \text{wher} \quad x > 0}$$

15. See Solution Guide

17. $f(g(x)) = g(f(x))$

17a. $f(x) = 3x+2$ $\quad g(x) = 2x + A$

$3(2x+A)+2 = 2(3x+2)+A$

$6x + 3A + 2 = 6x + 4 + A$

$-4 \qquad\qquad -4$

$6x + 3A - 2 = 6x + A$

$-6x \qquad\qquad -6x$

$3A - 2 = A$

$-3A \qquad -3A$

$\frac{-2}{-2} = \frac{-2A}{-2}$

$1 = A$ or $A = 1$

17b. $f(x) = 3x+2$ $\quad g(x) = Bx - 1$

$3(Bx-1)+2 = B(3x+2) - 1$

$3Bx - 3 + 2 = 3Bx + 2B - 1$

$3Bx - 1 = 3Bx + 2B - 1$

$+1 \qquad\qquad +1$

$3Bx = 3Bx + 2B$

$-3Bx = -3Bx$

$\frac{0}{2} = \frac{2B}{2}$

$0 = B$ or $B = 0$

19. Check Readme.

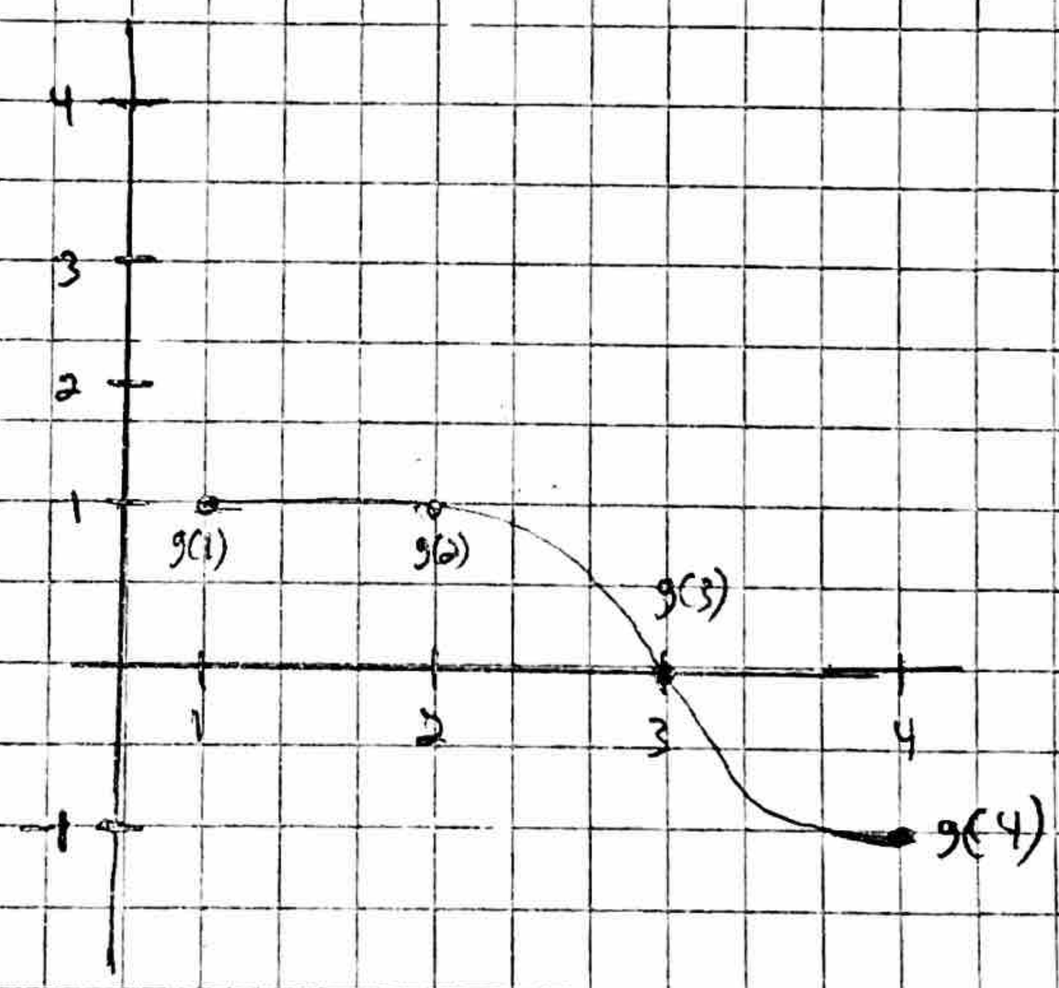
21. Check Readme

23a. $m = \frac{\Delta y}{\Delta x}$

$g(1)$	$g(2)$	$g(3)$	$g(4)$
$g(1) = \frac{1}{1}$	$g(2) = \frac{1}{1}$	$g(3) = \frac{0}{1}$	$g(4) = \frac{-1}{1}$
$\|\|$	$\|\|$	$\|\|$	
$g(1) = 1$	$g(2) = 1$	$g(3) = 0$	$g(4) = -1$

23b.

$g(1) = 1$	$g(2) = 1$	$g(3) = 0$	$g(4) = -1$
$(1, 1)$	$(2, 1)$	$(3, 0)$	$(4, -1)$



25. Weird Verbage

31. $P(x) = \begin{cases} 3-x, & \text{if } x \text{ is rational} \\ 1, & \text{if } x \text{ is irrational} \end{cases}$