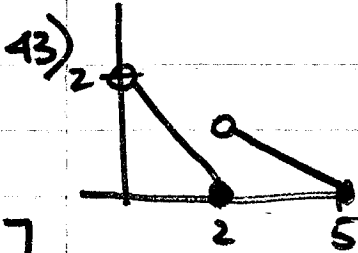


$$1 + \textcircled{x^{x-1}}$$

1.2

53)	$g(x)$	$f(x)$	$(f \circ g)(x) = f(g(x))$
(a)	x^2	$\sqrt{x-5}$	$\sqrt{x^2-5}$
(b)	$\frac{1}{x-1}$	$1 + \frac{1}{x}$	x
(c)	$\frac{1}{x}$	$\frac{1}{x^2}$	x
(d)	\sqrt{x}	x^2	$ x $

$$\sqrt{x^2}$$

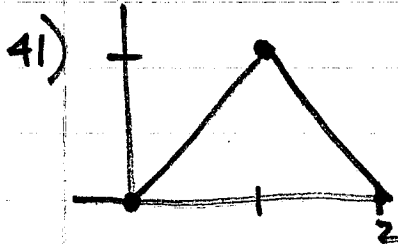


$$f(x) = \begin{cases} -x+2, & 0 < x \leq 2 \\ -\frac{1}{3}(x-5), & 2 < x \leq 5 \end{cases}$$

[[x]]

$(0, 2), (2, 0)$
 $m = \frac{0-2}{2-0} = -\frac{2}{2} = -1$
 $y = -1x + 2$

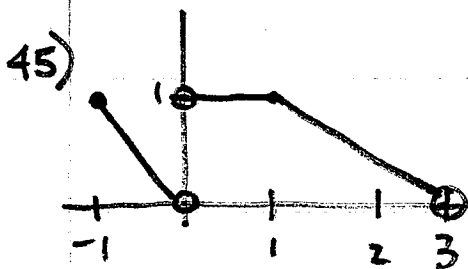
$(2, 0), (5, 0)$
 $m = \frac{0-0}{5-2} = \frac{0}{3} = 0$
 $y = 0(x-2) = 0$



$$f(x) = \begin{cases} x, & 0 \leq x \leq 1 \\ -x+2, & 1 < x \leq 2 \end{cases}$$

$(0, 0), (1, 1)$
 $m = \frac{1-0}{1-0} = 1$
 $y = x$

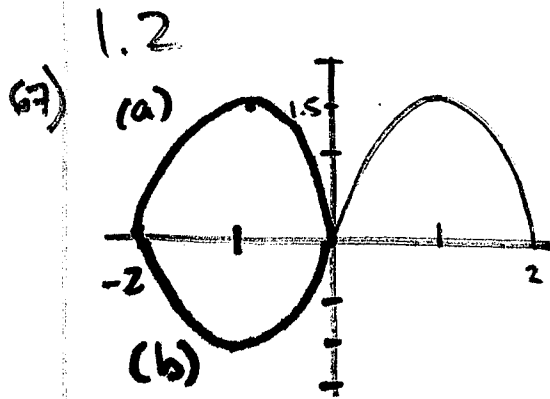
$(1, 1), (2, 0)$
 $m = \frac{0-1}{2-1} = -1$
 $y = -1(x-2) = -x+2$



$$f(x) = \begin{cases} -x, & -1 \leq x < 0 \\ 1, & 0 \leq x \leq 1 \\ -\frac{1}{2}(x-3), & 1 < x < 3 \end{cases}$$

$(-1, 1), (0, 0)$
 $m = \frac{0-1}{0-(-1)} = -1$
 $y = -x$

$(1, 0), (3, 0)$
 $m = \frac{0-0}{3-1} = 0$
 $y = 0(x-1) = 0$

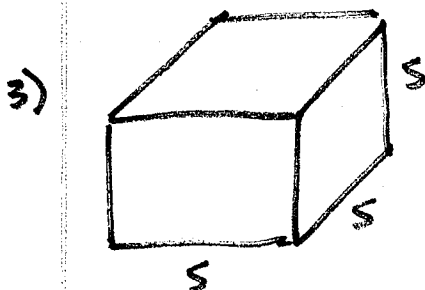


1) $A = \pi r^2$ $r = \frac{1}{2}d$

(a) $\checkmark = \pi \left(\frac{d}{2}\right)^2$

$\checkmark = \frac{\pi d^2}{4}$

(b) $= \frac{\pi(4)^2}{4} = 4\pi \text{ in}^2$



FRONT = s^2

BACK = s^2

LEFT = s^2

RIGHT = s^2

TOP = s^2

BOTTOM = s^2

$SA = 6s^2$

$\frac{1}{0} \quad 0 \sqrt{1}$

$1 + \frac{1}{x^2}$

12) DOMAIN $(-\infty, 0) \cup (0, \infty)$

RANGE $(1, \infty)$

1.2

$$4) V = \frac{4}{3} \pi r^3 \\ = \frac{4}{3} \pi (3)^3 \\ = 36\pi$$

$$42) f(x) = \begin{cases} 0, & 1 \leq x < 2, 3 \leq x \leq 4 \\ 2, & 0 \leq x < 1, 2 \leq x < 3 \end{cases}$$

$$51) f(x) = x + 5 \quad g(x) = x^2 - 3$$

$$(a) f(g(x)) = (x^2 - 3) + 5 = x^2 + 2$$

$$(b) g(f(x)) = (x + 5)^2 - 3$$

$$(c) f(g(0)) = (0)^2 + 2 = 2$$

$$(d) g(f(0)) = (0 + 5)^2 - 3 = 22$$

$$(e) g(g(-2)) \quad g(-2) = 1 \quad g(1) = -2$$

$$(f) f(f(x)) = (x + 5) + 5 = x + 10$$

$$43) f(x) = \begin{cases} -x + 2, & 0 < x \leq 2 \\ -\frac{1}{3}(x - 5), & 2 < x \leq 5 \end{cases}$$

$$(0, 2), (2, 0)$$

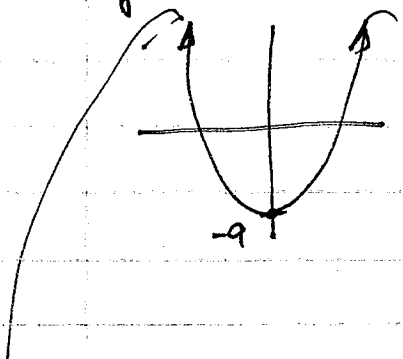
$$\frac{0 - 2}{2 - 0} = -1$$

$$(2, 1), (5, 0)$$

$$\frac{0 - 1}{5 - 2} = -\frac{1}{3}$$

$$y - 0 = -\frac{1}{3}(x - 5)$$

$$6) y = x^2 - 9$$

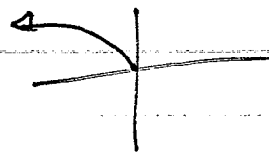


DOMAIN: $(-\infty, \infty)$

RANGE: $[-9, \infty)$

10) DOMAIN: $(-\infty, 0]$

RANGE: $[0, \infty)$



1.2

$$27) y = \frac{x^3}{x^2-1} \rightarrow \frac{(-x)^3}{(-x)^2-1} = \frac{-x^3}{x^2-1} = \frac{x^3}{x^2-1} \quad \text{ODD}$$

33)

$$4-x^2$$
$$\frac{3}{2}x + \frac{3}{2}$$
$$x+3$$

$$x < 1$$
$$1 \leq x \leq 3$$
$$x > 3$$

