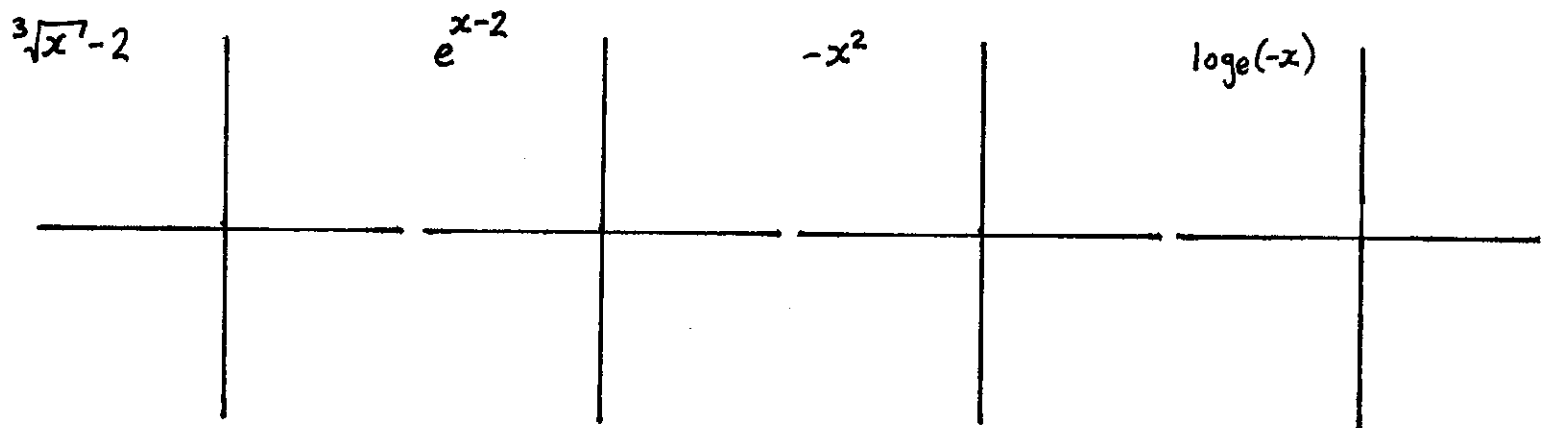
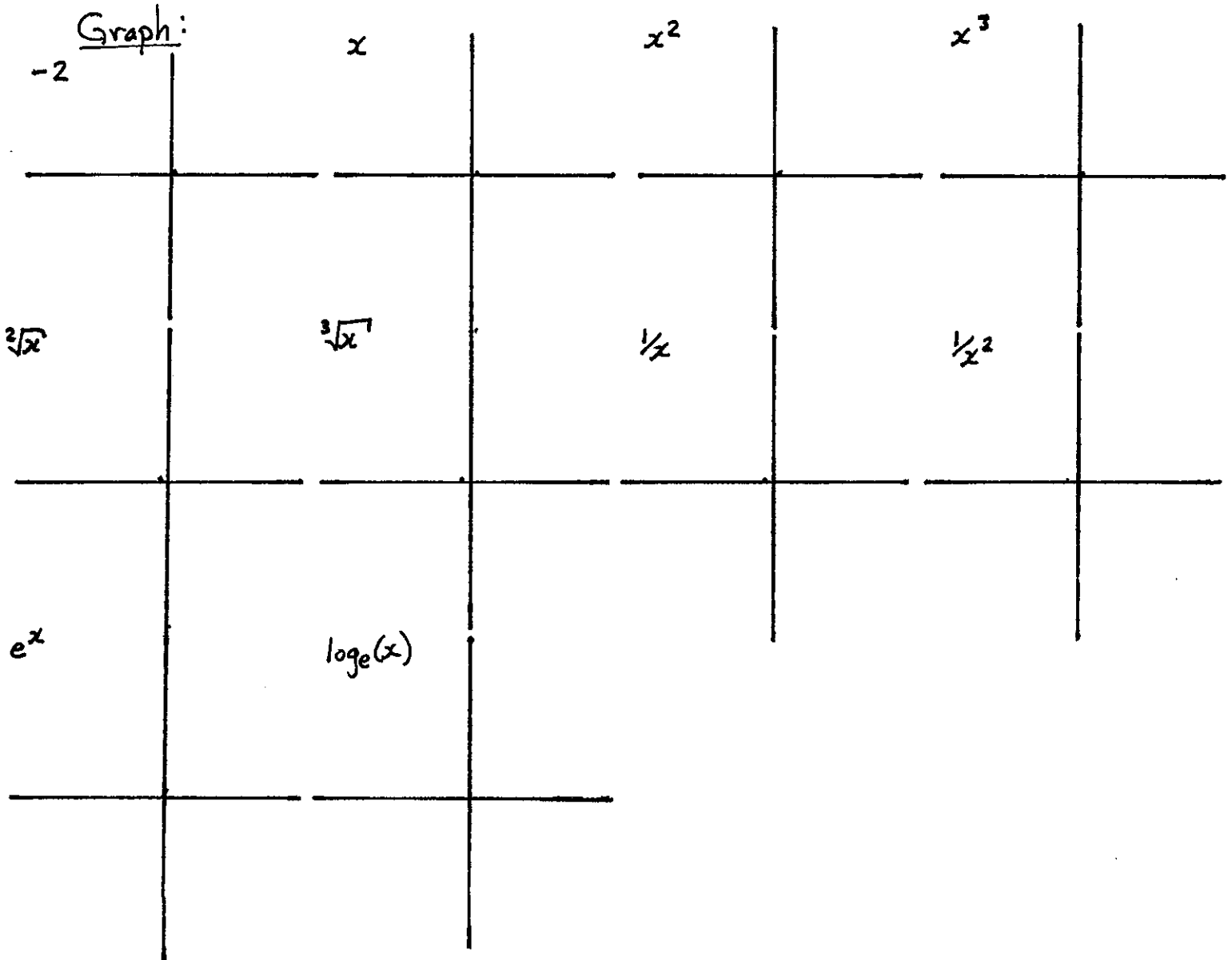


change in the graph

$f(x)$	x^2	$\sqrt[3]{x}$	e^x	$\log_e(x)$	
$f(x)+2$	x^2+2	$\sqrt[3]{x}+2$	e^{x+2}	$\log_e(x)+2$	
$f(x)-2$	x^2-2	$\sqrt[3]{x}-2$	e^{x-2}	$\log_e(x)-2$	
$2f(x)$	$2x^2$	$2\sqrt[3]{x}$	$2e^x$	$2\log_e(x)$	
$\frac{1}{2}f(x)$	$\frac{1}{2}x^2$	$\frac{1}{2}\sqrt[3]{x}$	$\frac{1}{2}e^x$	$\frac{1}{2}\log_e(x)$	
$-f(x)$	$-x^2$	$-\sqrt[3]{x}$	$-e^x$	$-\log_e(x)$	
$f(x+2)$	$(x+2)^2$	$\sqrt[3]{x+2}$	e^{x+2}	$\log_e(x+2)$	
$f(x-2)$	$(x-2)^2$	$\sqrt[3]{x-2}$	e^{x-2}	$\log_e(x-2)$	
$f(2x)$	$(2x)^2$	$\sqrt[3]{2x}$	e^{2x}	$\log_e(2x)$	
$f(\frac{x}{2})$	$(\frac{x}{2})^2$	$\sqrt[3]{\frac{x}{2}}$	$e^{\frac{x}{2}}$	$\log_e(\frac{x}{2})$	
$f(-x)$	$(-x)^2$	$\sqrt[3]{-x}$	e^{-x}	$\log_e(-x)$	

Graph:



$$(x+1)^3 - 4$$

starting function

vertical change

horizontal change

$$-(x-1)^2$$

starting function

vertical change

horizontal change

$$-\log_e(x+2)$$

starting function

vertical change

horizontal change

$$\frac{1}{x-2} + 4$$

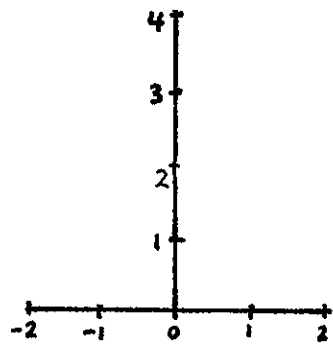
starting function

vertical change

horizontal change

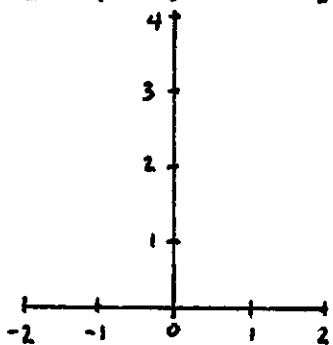
$$f: [-2, 1) \rightarrow \mathbb{R}$$

$$f(x) = x^2$$



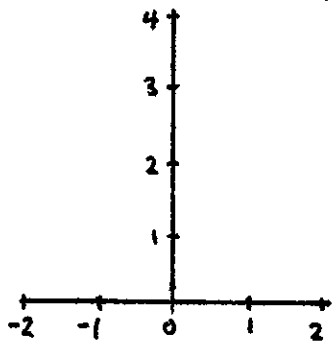
$$f: \{1\} \rightarrow \mathbb{R}$$

$$f(x) = 4$$



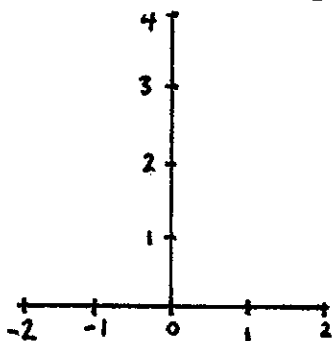
$$f: (1, \infty) \rightarrow \mathbb{R}$$

$$f(x) = x + 2$$



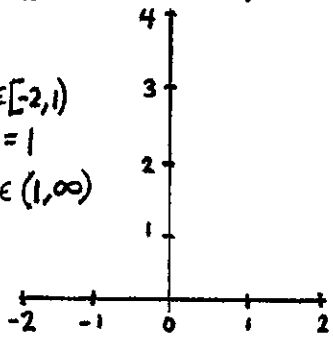
$$f: \mathbb{R} - \{1\} \rightarrow \mathbb{R}$$

$$f(x) = e^x$$



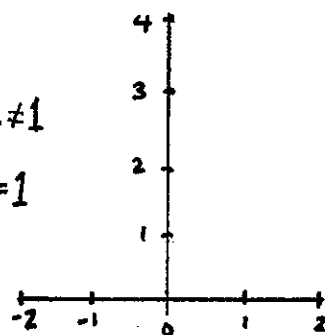
$$f: [-2, \infty) \rightarrow \mathbb{R}$$

$$f(x) = \begin{cases} x^2 & \text{if } x \in [-2, 1) \\ 4 & \text{if } x = 1 \\ x + 2 & \text{if } x \in (1, \infty) \end{cases}$$



$$f: \mathbb{R} \rightarrow \mathbb{R}$$

$$f(x) = \begin{cases} e^x & \text{if } x \neq 1 \\ 4 & \text{if } x = 1 \end{cases}$$



$$g(x) = \frac{3(x+2)(x^2+1)}{(x-2)(x-2)(x-2)}$$

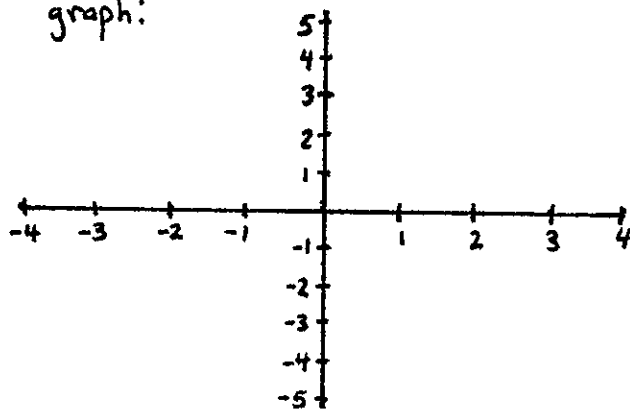
vertical asymptotes:

x-intercepts:

in between asy. and int.:

quotient of leading terms:

graph:



$$h(x) = -4(x+2)(x+1)(x+1)(x^2+1)$$

vertical asymptotes:

x-intercepts:

in between asy. and int.:

leading term:

graph:

