

3.1a p.189 (1, 5-15 odd, 17-20, 21-29 odd)

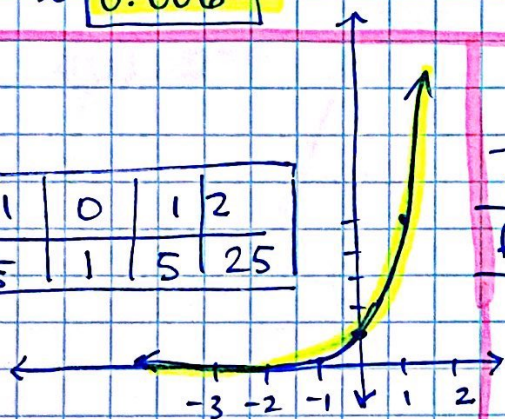
① **transcendental** (means it cannot be expressed as a finite sequence w/ algebraic operations such as $+$, $-$, \times , \div , and root extraction)

⑤ $f(x) = 3.4^x$ if $x = 6.8$
 $3.4^{(6.8)} \approx \boxed{412.033}$

⑦ $g(x) = 5^x$ if $x = -\pi$
 $5^{(-\pi)} \approx \boxed{0.006}$

⑨ $g(x) = 5^x$

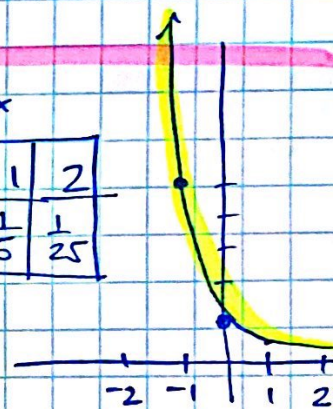
x	-3	-2	-1	0	1	2
g(x)	$\frac{1}{125}$	$\frac{1}{25}$	$\frac{1}{5}$	1	5	25



asy x-axis or $y=0$
 y-int (0,1)
 graph is increasing

⑪ $f(x) = 5^{-x}$

x	-3	-2	-1	0	1	2
f(x)	125	25	5	1	$\frac{1}{5}$	$\frac{1}{25}$

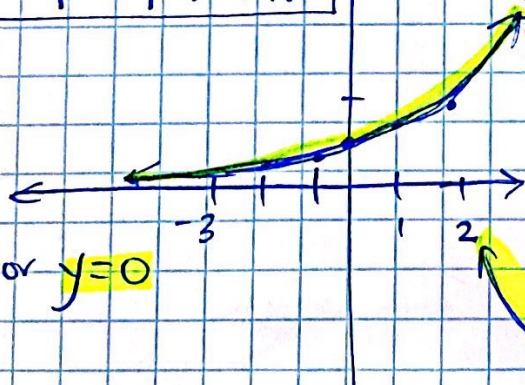


asy x-axis $y=0$
 y-int (0,1)
 graph is decreasing

⑬ $h(x) = \left(\frac{5}{4}\right)^x$

x	-3	-2	-1	0	1	2
h(x)	$\frac{64}{125}$	$\frac{16}{25}$	$\frac{4}{5}$	1	$\frac{5}{4}$	$\frac{25}{16}$

$\left(\frac{5}{4}\right)^3$ $\left(\frac{5}{4}\right)^2$
 $\left(\frac{4}{5}\right)^3$ $\left(\frac{4}{5}\right)^2$

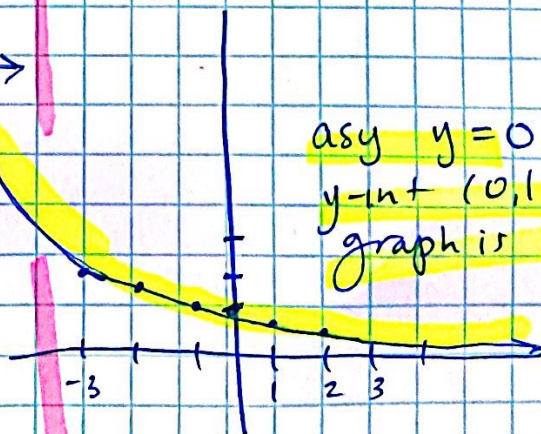


asy x-axis or $y=0$
 y-int (0,1)
 graph is increasing

⑮ $g(x) = \left(\frac{5}{4}\right)^{-x}$

x	-3	-2	-1	0	1	2
g(x)	$\frac{125}{64}$	$\frac{25}{16}$	$\frac{5}{4}$	1	$\frac{4}{5}$	$\frac{16}{25}$

$\left(\frac{5}{4}\right)^3$ $\left(\frac{5}{4}\right)^2$ $\left(\frac{5}{4}\right)^{-1}$ $\left(\frac{5}{4}\right)^{-2}$



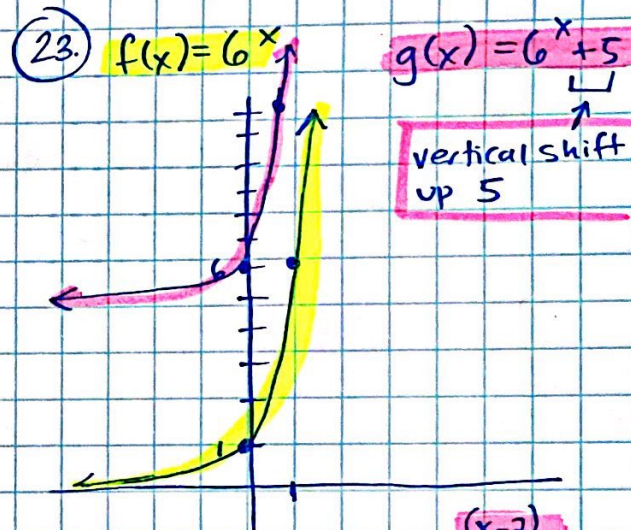
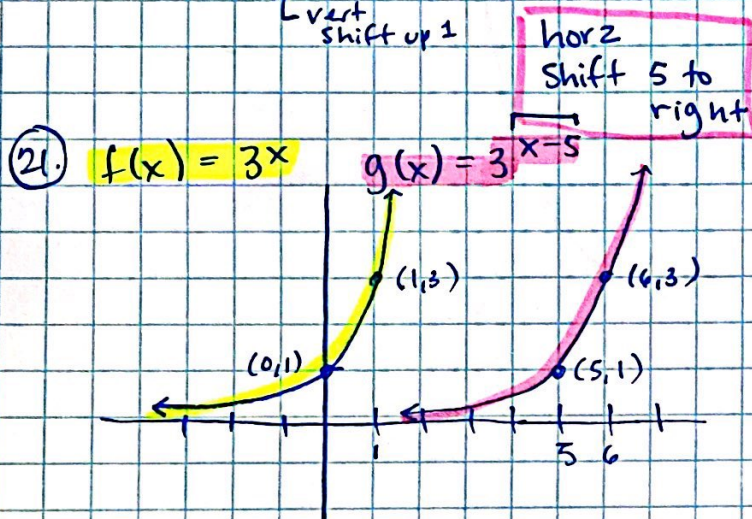
asy $y=0$
 y-int (0,1)
 graph is decreasing

17. $f(x) = 2^{(x-2)}$ (d)
 horz shift 2 to right

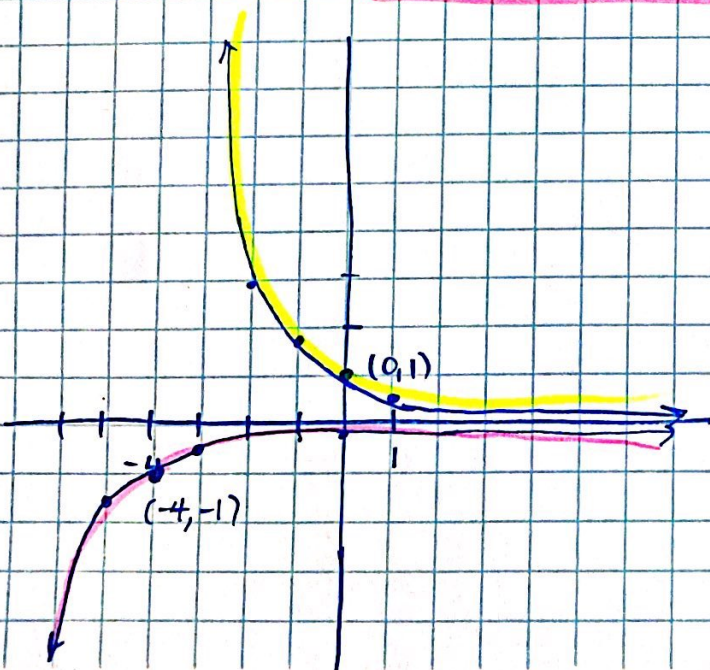
18. $f(x) = 2^{(-x)}$ (a)
 reflect over x-axis

19. $f(x) = 2^x - 4$ (c)
 vert shift down 4

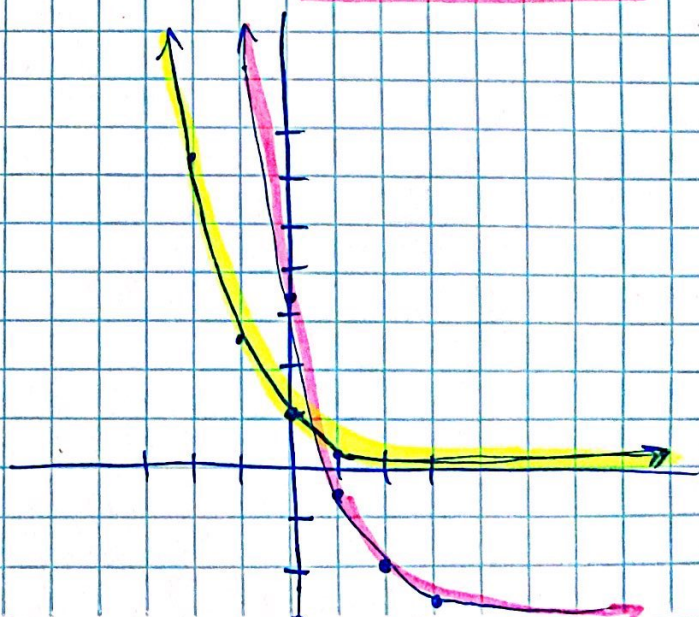
20. $f(x) = 2^x + 1$ (b)
 vert shift up 1



25. $f(x) = (\frac{3}{5})^x$ $g(x) = -(\frac{3}{5})^{(x+4)}$
 horz translation 4 to left then reflect over x-axis



27. $f(x) = 0.4^x$ $g(x) = 0.4^{(x-2)} - 3$
 horz translation 2 units to right
 vertical shift down 2 units



29. $f(x) = \left(\frac{1}{4}\right)^x$

$g(x) = \left(\frac{1}{4}\right)^{-x} + 2$

reflect across y-axis,
vertical shift up 2

