

2) the advantage is that we can use the shift methods used in section 3.5, 5.1, and other sections.

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

reflect about y -axis: "multiply exponent by -1 "

factor of $\frac{1}{5}$: $a = \frac{1}{5}$

$$g(x) = \frac{1}{5} \left(\frac{1}{2}\right)^{-(-x)} = \frac{1}{5} \left(\frac{1}{2}\right)^x$$

$$y\text{-int: } g(0) = \frac{1}{5} \left(\frac{1}{2}\right)^{0} = \frac{1}{5} (1) = \frac{1}{5} \quad \left(0, \frac{1}{5}\right)$$

domain: $(-\infty, \infty)$ range: $\left(\frac{1}{5}, \infty\right)$

$$6) f(x) = (1.68)^x$$

right 3 units: $h = +3$

factor of 2: $a = 2$

reflect about x -axis: $a < 0$ } $a = -2$

down 3 units: $k = -3$

$$y\text{-int: } g(0) = -2 (1.68)^{(0-3)} - 3 = -2 (1.68)^{-3} - 3 = \frac{-2}{(1.68)^3} - 3$$

domain: $(-\infty, \infty)$ range: $(-\infty, -3)$

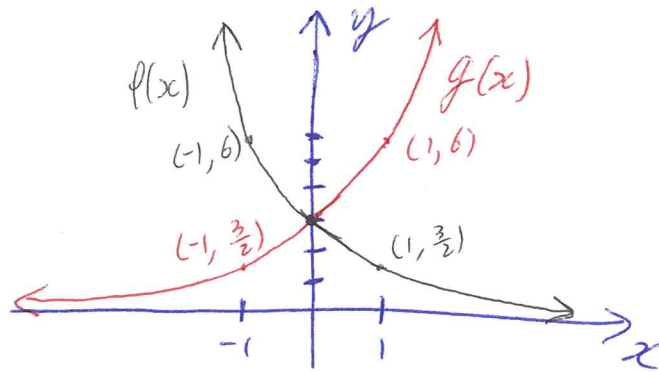
$$g(x) = a f(x-h) + k$$

$$g(x) = (-2) (1.68)^{(x-(+3))} + (-3)$$

$$\underline{\underline{g(x) = -2 (1.68)^{(x-3)} - 3}}$$

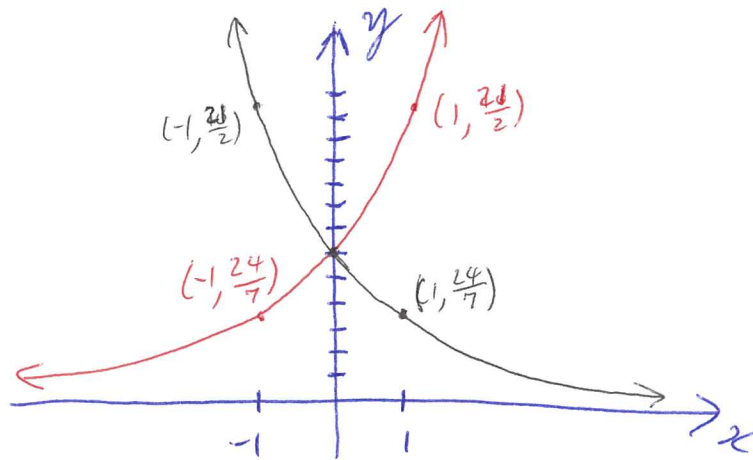
8) $f(x) = 3\left(\frac{1}{2}\right)^x$

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



10) $h(x) = 6(1.75)^{-x} = 6\left(\frac{7}{4}\right)^{-x}$

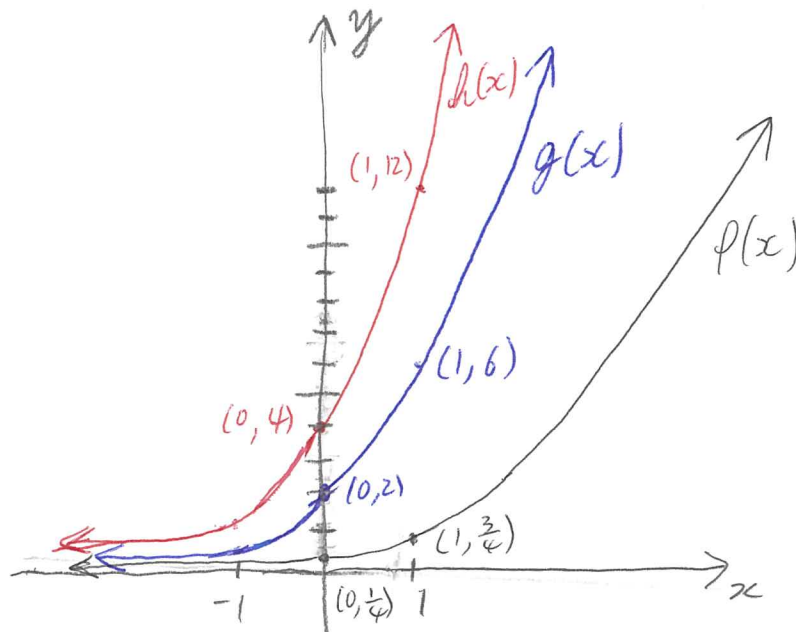
$g(x) = 6\left(\frac{7}{4}\right)^x$



12) $f(x) = \frac{1}{4}(3)^x$

$g(x) = 2(3)^x$

$h(x) = 4(3)^x$



$$14) f(x) = 2(1.28)^x \quad \text{graph F}$$

$$16) f(x) = 4(1.28)^x \quad \text{graph D}$$

$$18) f(x) = 4(0.69)^x \quad \text{graph C}$$

$$20) \text{ smallest value for } b \quad \text{graph D}$$

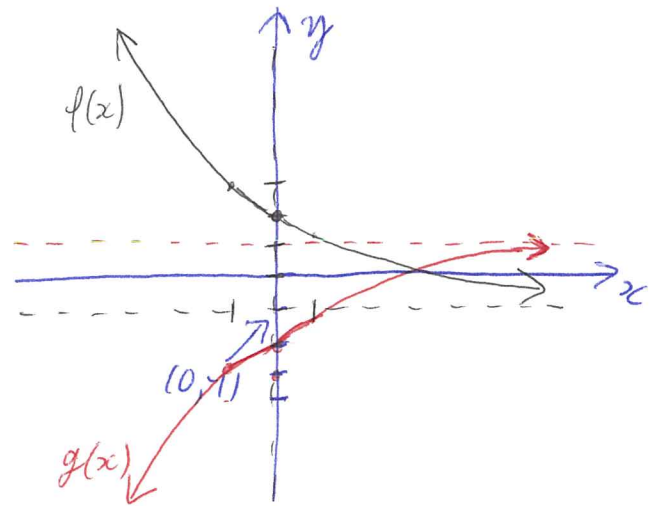
$$22) \text{ smallest value for } a \quad \text{graph F}$$

$$24) f(x) = 3(0.75)^x - 1 = 3\left(\frac{3}{4}\right)^{(x-0)} + (-1)$$

$$h=0 \quad k=-1$$

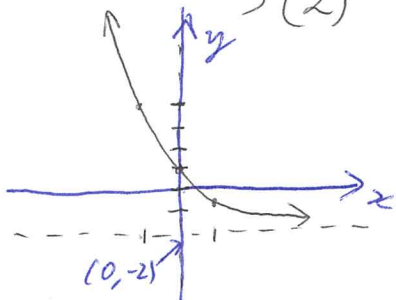
$$\text{like } y = 3\left(\frac{3}{4}\right)^x$$

$$g(x) = -3(0.75)^x + 1$$



$$30) f(x) = 3\left(\frac{1}{2}\right)^x - 2$$

$$= 3(2)^{-x} + (-2)$$



end behavior

$$\text{as } x \rightarrow -\infty, f(x) \rightarrow +\infty$$

$$\text{as } x \rightarrow +\infty, f(x) \rightarrow -2^+$$

32) 4 units up: $k = +4$

$$g(x) = 4^{(x-(0))} + (+4) = \underline{\underline{4^x + 4}}$$

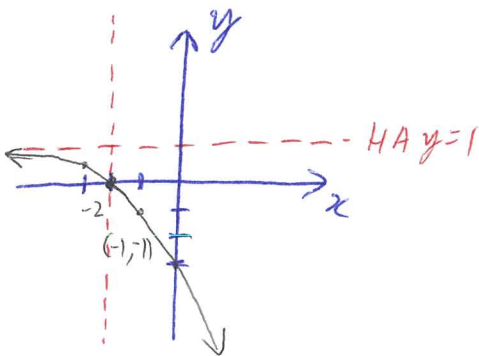
34) 2 units left: $h = -2$

$$g(x) = 4^{(x-(-2))} + (0) = \underline{\underline{4^{(x+2)}}}$$

36) reflect about x -axis: $a < 0$

$$g(x) = (-1) 4^x = \underline{\underline{-4^x}}$$

38)

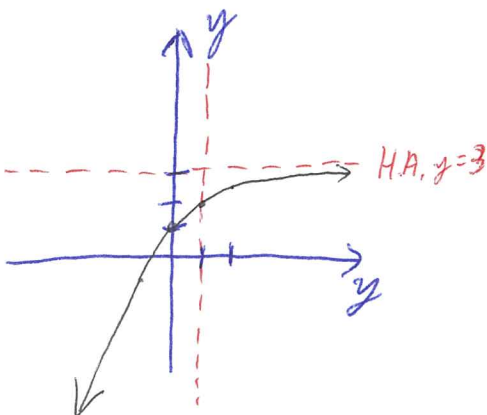


$a < 0$ $h = -2$ $k = +1$

$$f(x) = -1(2)^{(x-(-2))} + (+1)$$

$$\underline{\underline{f(x) = -(2)^{(x+2)} + 1}}$$

40)



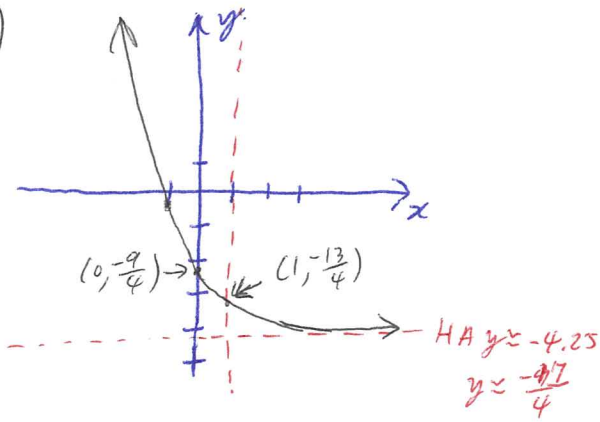
$a < 0$ $h = +1$ $k = +3$

reflected about y -axis "negative exponent"

$$f(x) = -1(2)^{-(x-(+1))} + (+3)$$

$$\underline{\underline{f(x) = -(2)^{-(x-1)} + 3}}$$

42)



6.2 | 6
reflect about y-axis "negative exponent"

$$a > 0, \quad h = +1, \quad k = -\frac{17}{4}$$

$$f(x) = (2)^{-(x-(+1))} + \left(-\frac{17}{4}\right)$$

$$\underline{\underline{f(x) = (2)^{-(x-1)} - \frac{17}{4}}}$$

$$44) \quad f(x) = 4(2)^{x-1} - 2$$

$$f(5) = 4(2)^{(5)-1} - 2$$

$$= 4(2)^4 - 2 = 64 - 2 = \underline{\underline{62}}$$