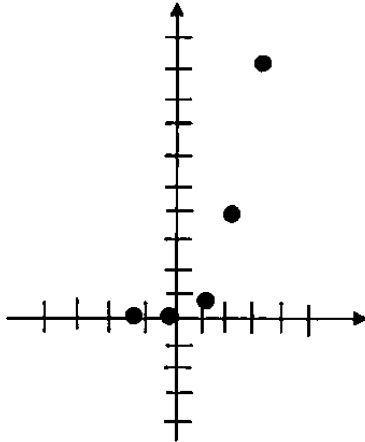


2.2 指數函數的圖形

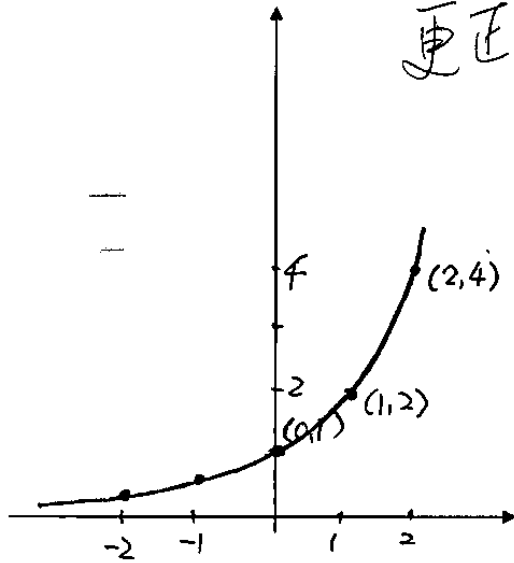
討論： $f(x)=3^x$

x	$y=3^x$
-2	$3^{-2}=\frac{1}{3^2}=\frac{1}{9}$
-1	$3^{-1}=\frac{1}{3}$
0	$3^0=1$
1	$3^1=3$
2	$3^2=9$

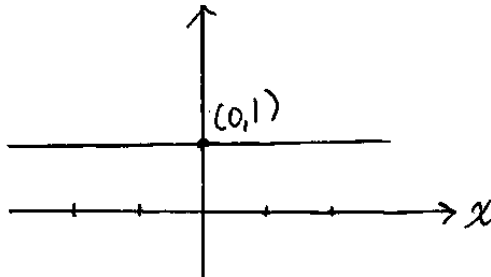


練習：作 $f(x)=2^x$ 之圖

x	$y=2^x$
-2	$2^{-2}=\frac{1}{4}$
-1	$2^{-1}=\frac{1}{2}$
0	$2^0=1$
1	$2^1=2$
2	$2^2=4$

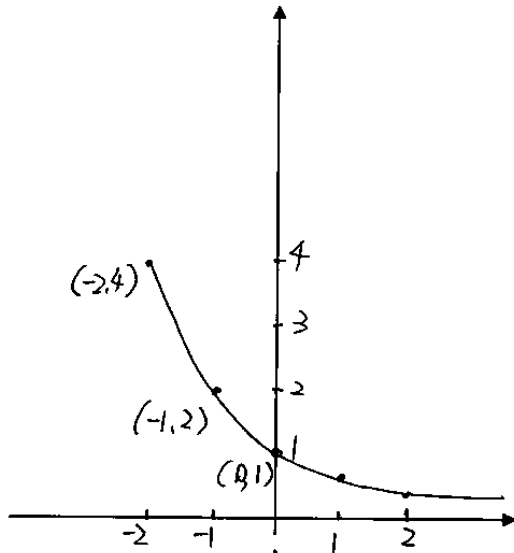


練習： $f(x)=1^x$ 的圖形



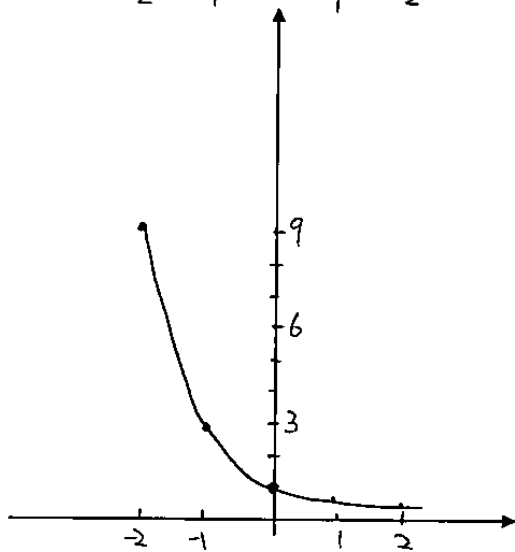
練習：作 $f(x) = \left(\frac{1}{2}\right)^x$ 之圖

x	$Y = \left(\frac{1}{2}\right)^x$
-2	$\left(\frac{1}{2}\right)^{-2} = \frac{1}{\left(\frac{1}{2}\right)^2} = \frac{1}{\frac{1}{4}} = 4$
-1	$\left(\frac{1}{2}\right)^{-1} = \frac{1}{\left(\frac{1}{2}\right)} = 2$
0	$\left(\frac{1}{2}\right)^0 = 1$
1	$\left(\frac{1}{2}\right)^1 = \frac{1}{2}$
2	$\left(\frac{1}{2}\right)^2 = \frac{1}{4}$



練習：作 $f(x) = \left(\frac{1}{3}\right)^x$ 之圖

x	$Y = \left(\frac{1}{3}\right)^x$
-2	$\left(\frac{1}{3}\right)^{-2} = \frac{1}{\left(\frac{1}{3}\right)^2} = \frac{1}{\frac{1}{9}} = 9$
-1	$\left(\frac{1}{3}\right)^{-1} = \frac{1}{\left(\frac{1}{3}\right)} = 3$
0	$\left(\frac{1}{3}\right)^0 = 1$
1	$\left(\frac{1}{3}\right)^1 = \frac{1}{3}$
2	$\left(\frac{1}{3}\right)^2 = \frac{1}{9}$



結論

指數函數 $f(x) = a^x$ 一定通過 $(0, 1)$ 的點

當 $a > 1$ $f(x)$ 為遞增函數， x 值越大函數值越大

當 $a = 1$ $f(x)$ 為常數函數

當 $a < 1$ $f(x)$ 為遞減函數， x 值越大函數值越小