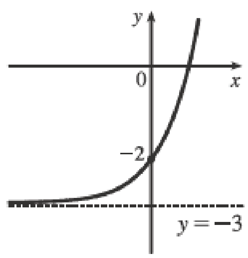
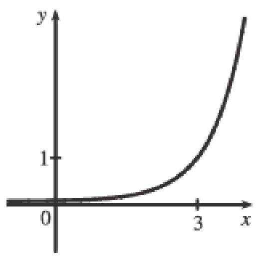
- 7.Start with $y = 4^x$(figure.3) by shifting figure.3 downward 3 unit we have $y = 4^x - 3$.



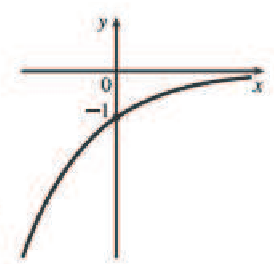
$y = 4^x - 3$

- 8.Start with $y = 4^x$(figure 3) by shifting this one 3 unit to the right we have $y = 4^x - 3$.



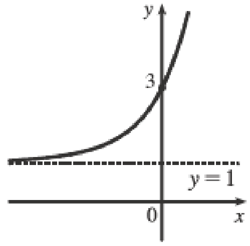
$y = 4^{x-3}$

- 9.Start with $y = 2^x$(figure 2) reflect it about x-axis then about the y-axis to obtain the graph $y = -2^{-x}$.



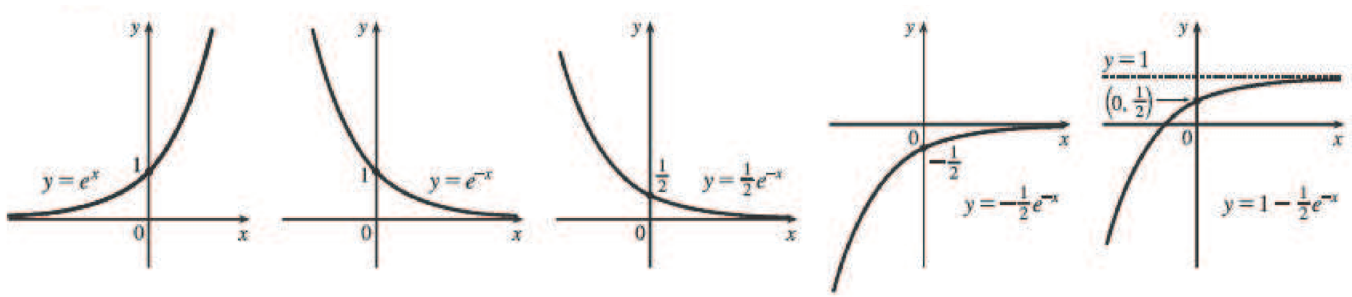
$y = -2^{-x}$

- 10.Start with $y = e^x$(figure 13), stretch this vertically by a factor of 2 and shift 1 unit upward.

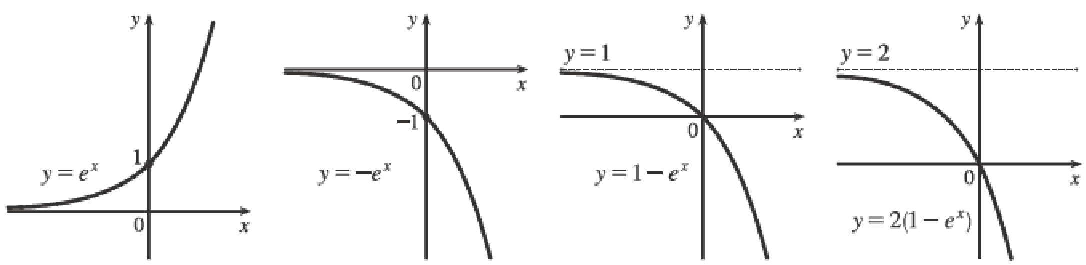


$y = 1 + 2e^x$

- 11.Start with $y = e^x$ and reflect this about y-axis. Then compress the graph vertically by a factor of 2 then reflect it about x-axis, finally shift upward one unit to have $y = 1 - \frac{1}{2}e^{-x}$.



- 12.Start with $y = e^x$ and reflect this about x-axis. Then shift upward one unit. Finally stretch vertically by a factor of 2.



- 13. (a)$y = e^x - 2$ (b)$y = e^{x-2}$ (c)$y = -e^x$ (d)$y = e^{-x}$ (e)$y = -e^{-x}$

- 14.(a)$y = e^x \Rightarrow (y-4)+4 = e^x$ by reflecting about $y = 4$, we have $-(y-4)+4 = e^x \Rightarrow y = -e^x + 8$. (b)as (a) we have $y = e^{-(x-2)+2} \Rightarrow y = -e^{-x+4}$.

- 15.(a)Since $1 + e^x > 0 forall x \in \mathbf{R}$ therefore the domain is $\mathbf{R}$.

(b)Since $1 - e^x = 0$ only if $x = 0$ therefore the domain is $(-\infty, 0) \bigcup (0, \infty)$.

- 16.(a)Since the domain of sine and exponential function have domain $\mathbf{R}$ therefore the domain of g is $\mathbf{R}$.

  (b)$1 - 2^t \geq 0 \Rightarrow t \leq 0$ therefore the domain is $(-\infty, 0]$.

- 19.$\frac{5^{x+h} - 5^x}{h} = 5^x(\frac{5^h - 1}{h})$.

- 20.For suppose the month is February therefore by method.2 you should pay $(1 + 2 + 2^2 + \ldots + 2^{27}) = 2^{28} - 1 = 268435455$ cent equal to 2684354.55 dollars which is larger than method one.