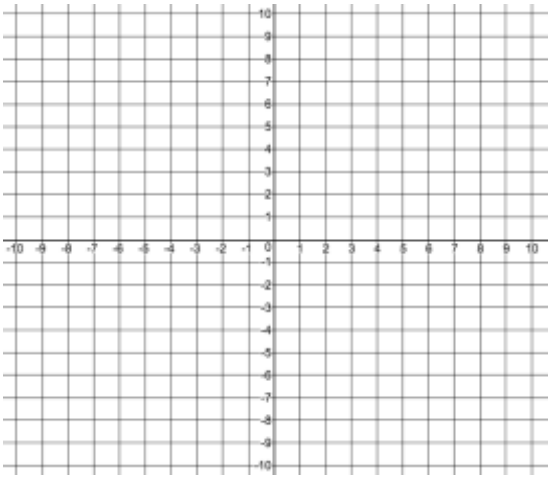
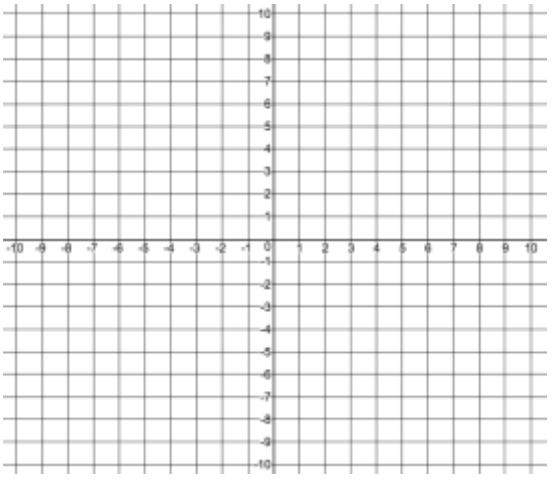
W1 – 6.1/6.2 – Intro to Logarithms and Review of Exponentials
MHF4U

1) Sketch a graph of each function. Then, sketch a graph of the inverse of each function. Label each graph with its equation.

a) $y = 2^x$

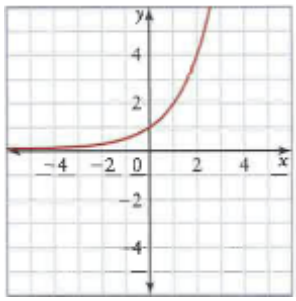
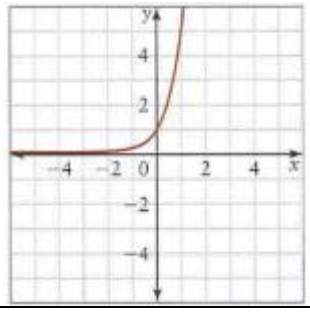
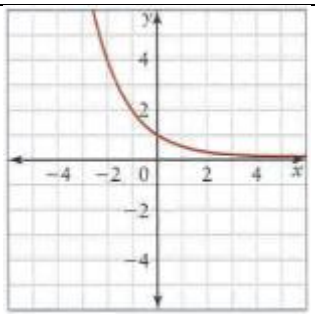
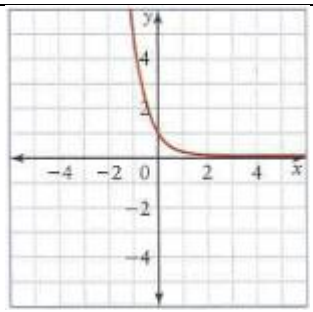


b) $y = 4^x$



2) Match each equation to its corresponding graph.

A) $y = 5^x$ **B)** $y = \left(\frac{1}{2}\right)^x$ **C)** $y = 2^x$ **D)** $y = \left(\frac{1}{5}\right)^x$

3) An influenza virus is spreading according to the function $N = 10(2)^t$, where N is the number of people infected and t is the time, in days.

a) How many people have the virus at each time?

i) initially, when $t = 0$

ii) after 1 day

iii) after 2 days

iv) after 3 days

b) After how many days will 40960 people be infected?

4) Rewrite each equation in logarithmic form

a) $4^3 = 64$

b) $128 = 2^7$

c) $5^{-2} = \frac{1}{25}$

d) $\left(\frac{1}{2}\right)^2 = 0.25$

e) $6^x = y$

f) $10^5 = 100\,000$

g) $\frac{1}{27} = 3^{-3}$

5) Evaluate each logarithm

a) $\log_2 64$ **b)** $\log_3 27$ **c)** $\log_2 \left(\frac{1}{4}\right)$

d) $\log_4 \left(\frac{1}{64}\right)$ **e)** $\log_5 125$ **f)** $\log_2 1024$

6) Evaluate each common logarithm

a) $\log 1000$ **b)** $\log \left(\frac{1}{10}\right)$ **c)** $\log 1$

d) $\log 0.001$ **e)** $\log 10^{-4}$ **f)** $\log 1\ 000\ 000$

7) Rewrite in exponential form

a) $\log_7 49 = 2$ **b)** $5 = \log_2 32$ **c)** $\log 10\ 000 = 4$

d) $w = \log_b z$ **e)** $\log_2 8 = 3$ **f)** $-2 = \log \left(\frac{1}{100}\right)$