

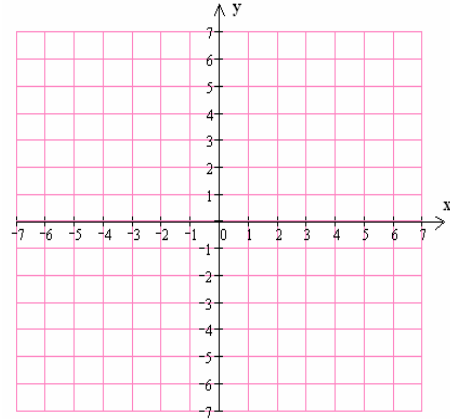
**MATH2 (814012) – SPRING 2006**

**WORKSHEET 8**

**Question (1):** Let  $f(x)=3^x$  ,  $g(x)=(\frac{1}{2})^x$  and  $h(x)=-4^x$

(1) Graph  $f(x)=3^x$

- Domain =
- Range =
- x - intercept
- y – intercept
- increasing or decreasing



(2) Evaluate:  $\frac{h(2) + f(3)}{5g(0)} =$

(3) Find  $g^{-1}(x)$ .

**Question (2):**

(1) Change each logarithmic form to an equivalent exponential form

(1)  $\log_{16} 4 = \frac{1}{2}$

(2)  $4 = \log_3 81$

(2) Change each exponential form to an equivalent logarithmic form

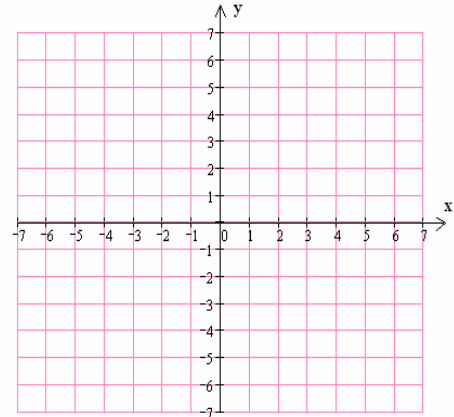
(1)  $3^2 = 9$

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

**Question (3):** Let  $f(x) = \log_2 x$

(1) Graph  $f(x)$

- Domain =
- Range =
- $x$ -intercept =
- $y$ -intercept =
- increasing or decreasing =



(2) Find  $f^{-1}(x)$

**Question (4):**

(1) Write each expression as a single logarithm and simplify.

$$(1) \log_3(x-1) + \log_3(x+1) =$$

$$(2) \log_2(k^2 - 9) - \log_2(k - 3) =$$

$$(3) \ln(t^2 - t - 12) - \ln(t - 4) =$$

$$(4) \frac{1}{2} \log_3(x-3) - \frac{2}{3} \log_3(x+1) =$$

(2) Rewrite each expression as a sum or difference of multiples of logarithms.

$$(1) \log \left( \frac{x\sqrt{y}}{w^4} \right) =$$

$$(2) \ln \left( \frac{(x-3)\sqrt{w+1}}{(y-1)^2} \right)$$

