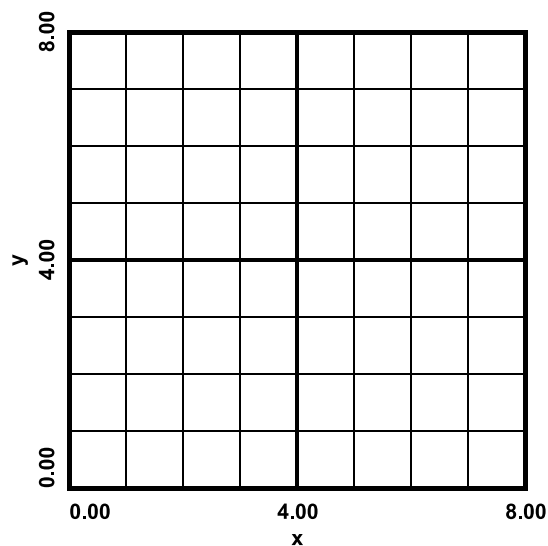


## PRE-AP ALGEBRA 2

## HOMEWORK #2B

*Lesson 2B.1:*

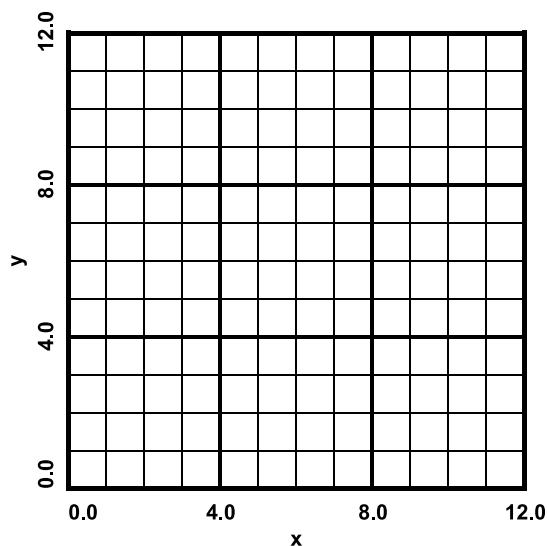
- 1) **a)** For  $y = f(x) = -2x + 8$ , calculate  $y = f^{-1}(x)$ .
- b)** Graph  $y = f(x)$ ,  $y = f^{-1}(x)$  and  $y = x$  on the axes below.



- 2) For  $y = f(x)$  and  $y = f^{-1}(x)$  from problem 1, calculate
- a)**  $f(f^{-1}(x))$
- b)**  $f^{-1}(f(x))$

*Lesson 2B.2:*

- 3) **a)** For  $y = f(x) = x^2 - 16x + 67$ , calculate  $y = f^{-1}(x)$ .
- b)** Graph  $y = f(x)$ ,  $y = f^{-1}(x)$  and  $y = x$  on the axes below.



- 4) For  $y = f(x)$  and  $y = f^{-1}(x)$  from problem 3, verify that  $f(f^{-1}(x)) = x$ .

*Lesson 2B.3:*

- 5) For  $y = f(x) = \frac{5x-9}{13x-17}$ , calculate  $y = f^{-1}(x)$ .
- 6) For  $y = f(x)$  and  $y = f^{-1}(x)$  from problem 5, verify that
- a)**  $f(f^{-1}(x)) = x$
- b)**  $f^{-1}(f(x)) = x$

## Lesson 2B.4:

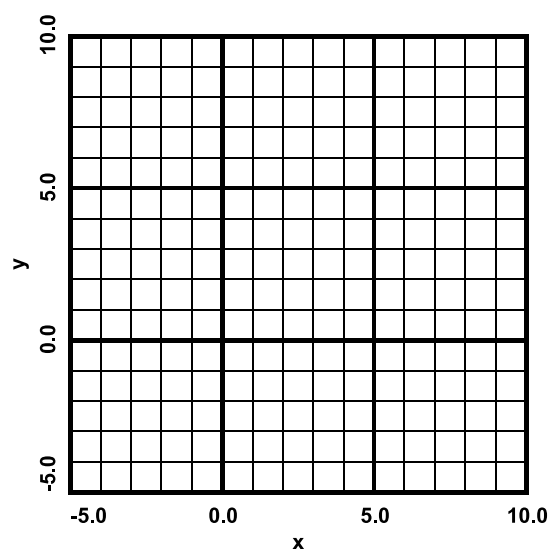
- 7) a) Fill in the table.

$x$	$y = f(x) = 2.1^x$
-2	
-1	
0	
1	
2	
3	

- b) Switch
- $x$
- and
- $y$
- in the table from part a.

$x$	$y = f^{-1}(x) = \log_{2.1} x$
	-2
	-1
	0
	1
	2
	3

- c) From the tables in parts a and b, graph
- $y = f(x)$
- ,
- $y = f^{-1}(x)$
- and
- $y = x$
- on the grid below.



- 8) Convert the exponential equations to logarithmic form.

a)  $4^x = 1024$

b)  $6^x = 1296$

- 9) Convert the logarithmic equations to exponential form.

a)  $x = \log_5 3125$

b)  $x = \log_3 2187$

- 10) Use the Inverse Function Properties to solve the indicated equation for
- $x$
- .

a)  $\log_5 x = 3$

b)  $\log_x 49 = 2$

## Lesson 2B.5:

- 11) Evaluate
- $x$
- without using a calculator.

a)  $x = \log_5 125$

b)  $x = \log_2 32$

- 12) Evaluate the logarithms with your calculator.

a)  $\log_7 2000$

b)  $\log_4 1000$

- 13) Evaluate the logarithms with your calculator.

a)  $\ln 1100$

b)  $\log 10,500$

- 14) Solve the indicated equation for
- $x$
- .

a)  $17^x = 70$

b)  $13^{5x-9} = 2200$

- 15) Solve the indicated equation for
- $x$
- .

a)  $\log_7(3x + 11) = 4$

b)  $\log(5x - 4) = 3$

c)  $\ln(4x - 5) = 8$

## Lesson 2B.6:

- 16) Solve
- $4^{2x} \cdot 5^{3x} = 400$
- for
- $x$
- .

- 17) Solve
- $3^x + 3^{-x} = 4$
- for
- $x$
- .

**18)** For  $y = f(x)$  as given, calculate  $y = f^{-1}(x)$ .

**a)**  $f(x) = 7^{4x-3} + 8$

**b)**  $f(x) = \log_{13}(2x + 5) - 17$