

SECONDARY MATH II // MODULE 4  
 MORE FUNCTIONS, MORE FEATURES - 4.5

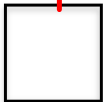
4.5

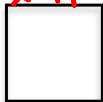
READY, SET, GO! Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_


**READY**

Topic: Square Roots

The area of a square is given. Find the length of the side.

1.  $\sqrt{16 \text{ in}^2}$   
 4  


2.  $(x - 11)^2 \text{ ft}^2$   
~~x-11~~  


3.  $(25a^2 + 60a + 36) \text{ cm}^2$   
~~25 36~~  
~~6 36~~  
~~5 24~~  
~~30 6~~  
~~25 5~~  
 25a<sup>2</sup> 30a 30a 36  
 by grouping   $(5a+6)(5a+6)$   
 $25a^2 + 30a + 30a + 36$   
 $[5a(5a+6) + 6(5a+6)]$   
 $(5a+6)[5a+6] \checkmark$

4. If the length of the side of a square is  $(x - 24)$  cm, what do we know about the value of  $x$ ?

Complete the table of values for  $f(x) = \sqrt{x}$ . Write answers in simplest radical form. ✓

5.

$x$	$f(x)$
$\sqrt{1}$	1
$\sqrt{4}$	2
$\sqrt{9}$	3
$\sqrt{16}$	4
25	
36	
49	
64	
81	
100	

$\left(\frac{5}{5}\right) \times \frac{25}{2} >$

6.

$x$	$f(x)$
$\sqrt{25}$	5
50	$5\sqrt{2}$
75	
100	
125	
150	
175	
200	
225	
250	

$\begin{matrix} x-8 \\ 8 \\ 8 \end{matrix}$

7.

$x$	$f(x)$
$x^2 - 2x + 1$	$(x-1)$
$x^2 - 4x + 4$	
$x^2 - 6x + 9$	
$x^2 - 8x + 16$	
$x^2 - 10x + 25$	
$x^2 - 12x + 36$	
$x^2 - 14x + 49$	
$x^2 - 16x + 64$	
$x^2 - 18x + 81$	$(x-8)$ ✓
$x^2 - 20x + 100$	

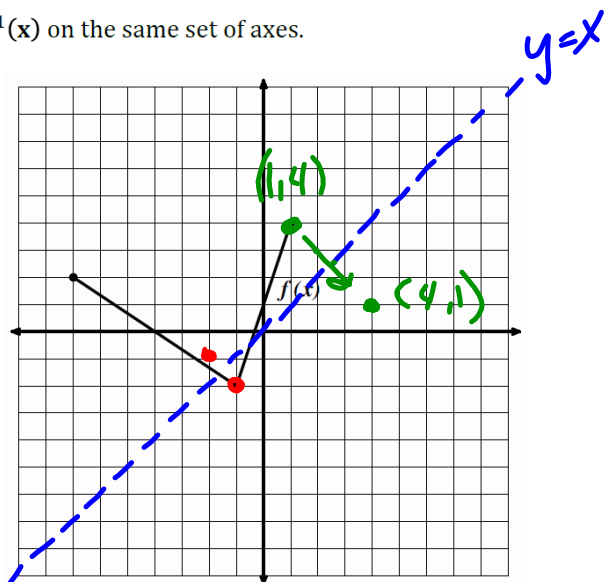
Topic: Inverse functions = reverse  $x$  &  $y$ , (graph) reflect  $y=x$

8. Given:  $f(x) = \{(-13, 5)(-9, -9)(-5, -2)(-1, -5)(0, -4)(4, 6)(9, 10)(14, 32)\}$

Find  $f^{-1}(x) = \{(\cancel{5}, \cancel{-13})(\cancel{-9}, \cancel{-9})(\quad, \quad)(\quad, \quad)(\quad, \quad)(\quad, \quad)(\quad, \quad)(\quad, \quad)\}$

9. The function  $f(x)$  is shown on the graph. Graph  $f^{-1}(x)$  on the same set of axes.

10. Is the graph of  $f^{-1}(x)$  also a function? Justify your answer.



11. I am going on a long trip to Barcelona, Spain. I am only taking one suitcase and it is packed very full. I plan to arrive completely exhausted at my hotel in the middle of the night. The only thing I will want to take out of my suitcase is a pair of pajamas. So when I packed my suitcase at home, did I want to put my pajamas in first, somewhere in the middle, or last? Explain.

12. Write the inverse function for the table of values.

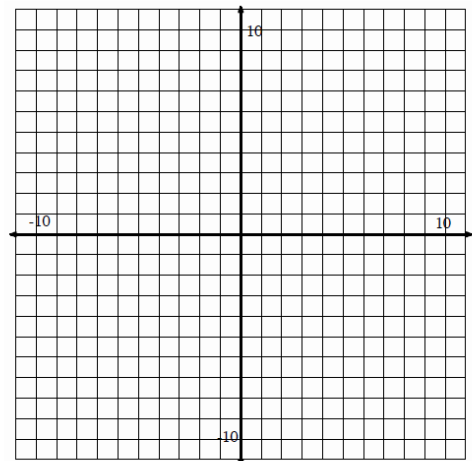
Input $x$	-10	-6	-2	2	6
Output $g(x)$	-2	-1	0	1	2

Input $x$	-2				
Output $g^{-1}(x)$	-10				

13. Use the points in problem 12. Graph  $g(x)$  in black and  $g^{-1}(x)$  in a different color on the coordinate grid at the right. Graph the line of reflection for the corresponding points.

14. Is  $g^{-1}(x)$  also a function? Justify your answer.



GO

Topic: Multiplying square roots

**Multiply** Write your answers in simplest radical form.

15.  $\sqrt{3}(4 + 5\sqrt{3})$

16.  $6\sqrt{11}(2 - \sqrt{11})$

17.  $(1 - 7\sqrt{2})(1 - \sqrt{2})$

18.  $(3 + 2\sqrt{13})(3 - 2\sqrt{13})$

19.  $(4 + 3\sqrt{5})(4 - 3\sqrt{5})$

20.  $(1 - 3\sqrt{6})(5 - 2\sqrt{6})$

$$\begin{aligned}
 & 9 - \cancel{6\sqrt{13}} + \cancel{6\sqrt{13}} - 4(\sqrt{13})^2 \\
 & \qquad \qquad \qquad - 4(13) \\
 & 9 - 52 = -43
 \end{aligned}$$