

****Friday, January 13 is the last day Ms. Hansen will accept any late/missing/extra credit work for 2nd quarter****

-->This includes any test/quiz retakes

Questions on 4.5 HW?

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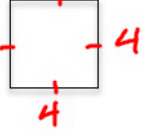
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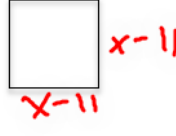
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The area of a square is given. Find the length of the side.


1. 16 in^2



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



3. $(25a^2 + 60a + 36) \text{ cm}^2$



$\sqrt{x^2} = x$
 $(5a+6)^2$

4. If the length of the side of a square is $(x - 24) \text{ cm}$, 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	$f(x)$
1	
4	
9	
16	
25	
36	
49	
64	

6.

x	$f(x)$
25	
50	
75	
100	
125	
150	
175	
200	

7.

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

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

5.

x	$f(x)$
1	
4	
9	
16	
25	
36	
49	
64	
81	
100	

6.

x	$f(x)$
25	
50	
75	
100	
125	
150	
175	
200	
225	
250	

7.

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

$(x-9)(x-9)$ $(x-10)(x-10)$
 $(x-10)^2$

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Topic: inverse functions

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

Find $f^{-1}(x) = \{(5, -13)(-9, -9)(-2, -5)(-5, -1)(,)(,)(,)(,)\}$

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.

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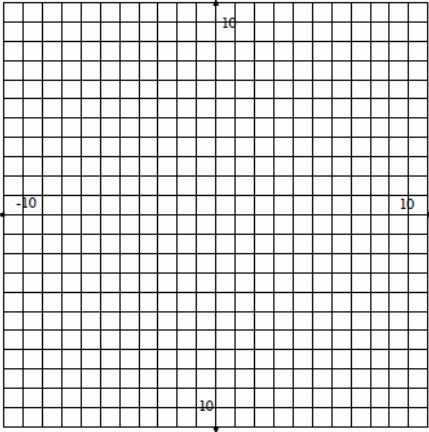
12. Write the inverse function for the table of values.

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

Input x	-2	-1			
Output $g^{-1}(x)$	-10	-6			

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

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multiply. write your answers in simplest radical form.

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

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. $(1 - 3\sqrt{6})(5 - 2\sqrt{6})$
 $5 - 2\sqrt{6} - 15\sqrt{6} + 6 \cdot 6$
 $41 - 17\sqrt{6}$

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4.6 Bernie's Bikes

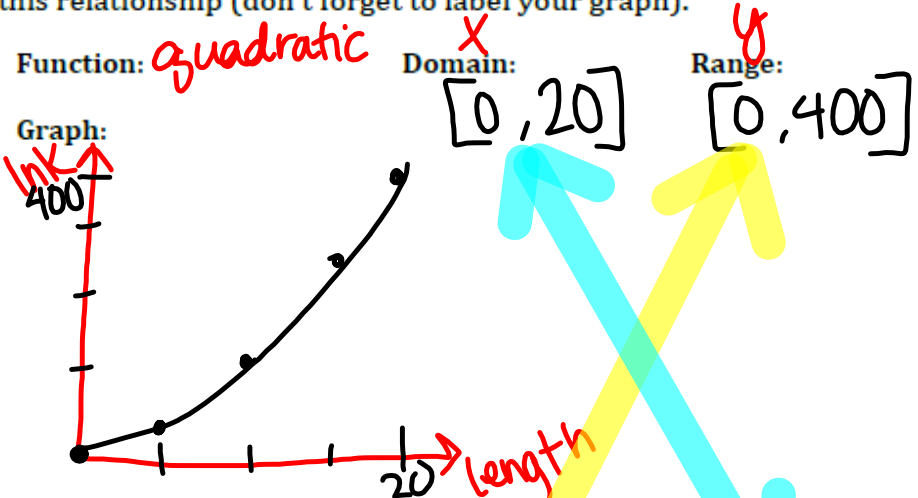
A Solidify Understanding Task



Bernie owns *Bernie's Bike Shop* and is advertising his company by taking his logo and placing it around town on different sized signs. After creating a few signs, he noticed a relationship between the amount of ink he needs for his logo and the size of the sign.

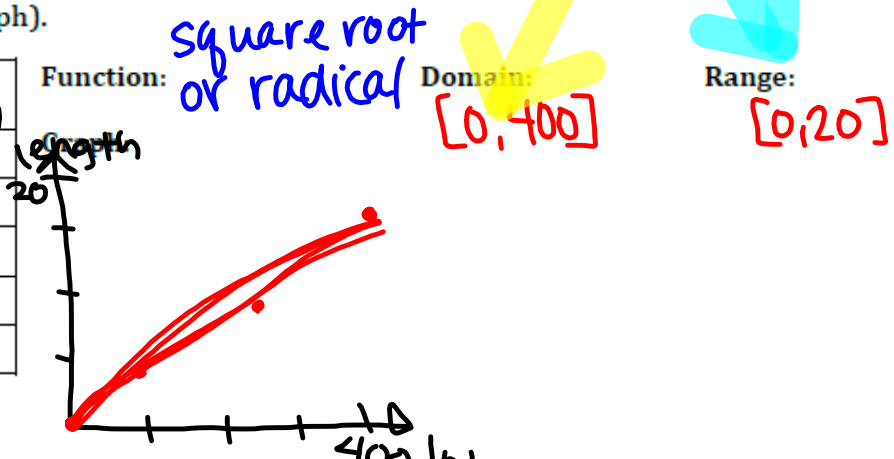
1. The table below represents some of the signs Bernie has created and the relationship between the amount of ink needed versus the size of the sign. Complete the information below to help Bernie see this relationship (don't forget to label your graph).

x Length of sign (in feet)	y Ink needed (in ounces)
3	9
4	16
2	4
15	225
x	x^2

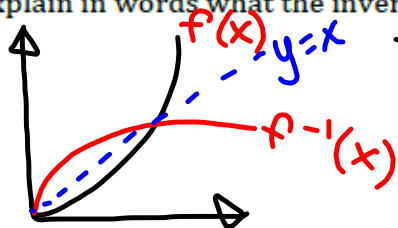


2. Using question 1, complete the information below for the *inverse* of this function (don't forget to label your graph).

x Ink	y length
9	3
16	4
4	2
225	15
x	\sqrt{x}



3. Explain in words what the inverse function represents.



→ Functions & their inverses are reflections across the line $y = x$.

→ Functions & their inverses interchange the domain & range.

Part II

Determine the inverse for each function, then sketch the graphs and state the domain and range for both the original function and it's inverse.

4. $f(x) = x^2 - 1$; $f^{-1}(x) = \pm \sqrt{x+1}$

Domain: $(-\infty, \infty)$ Domain: $[-1, \infty)$

Range: $[-1, \infty)$ Range: $(-\infty, \infty)$

5. $g(x) = 3x + 2$; $g^{-1}(x) = \frac{x-2}{3}$ or $\frac{1}{3}x - \frac{2}{3}$

Domain: $(-\infty, \infty)$ Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

6. $f(x) = (x+3)^2$; $f^{-1}(x) = -3 \pm \sqrt{x}$

Domain: $(-\infty, \infty)$ Domain: $[0, \infty)$

Range: $[0, \infty)$ Range: $(-\infty, \infty)$

7. $f(x) = x^3$; $f^{-1}(x) = \sqrt[3]{x}$

Domain: $(-\infty, \infty)$ Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

④ $y = x^2 - 1$ ⑤ $y = 3x + 2$ ⑥ $y = (x+3)^2$ ⑦ $y = x^3$

switch x & y

solve for y

④ $x = y^2 - 1$
 $x + 1 = y^2$
 $\pm \sqrt{x+1} = y$

⑤ $x = 3y + 2$
 $x - 2 = 3y$
 $\frac{x-2}{3} = y$

⑥ $\sqrt{x} = y + 3$
 $\pm \sqrt{x} = y + 3$
 $-3 \pm \sqrt{x} = y$

⑦ $\sqrt[3]{x} = y$
 $\sqrt[3]{x} = y$

Homework

Finish 4.6 "Ready, Set, Go"