Mathematics Algebra II Unit 06: Square Root Functions, Equations, and Inequalities 2013-2014

1 The table below would match which equation?

X	*Y*
-7	error
-6	error
-5	-1
-4	0
-1	1
4	2

A $y = (x + 5)^2 - 1$

B $y = (x - 5)^2 - 1$

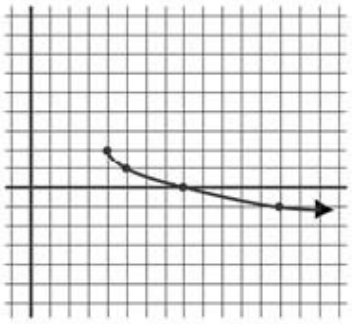
C $y = \sqrt{x+5} - 1$

D $y = \sqrt{x-5} - 1$

2 Which is the correct graph representing the following equation?

$$y = \sqrt{x+4} + 2$$

F



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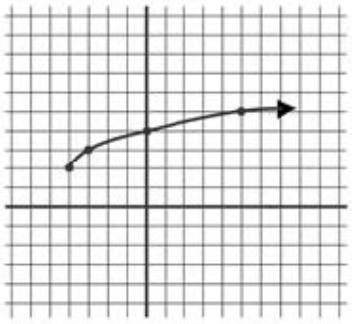

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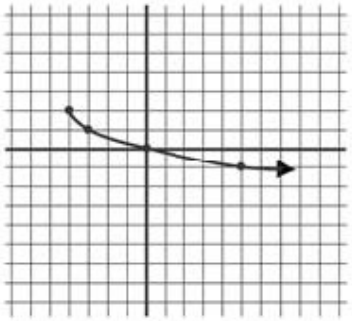

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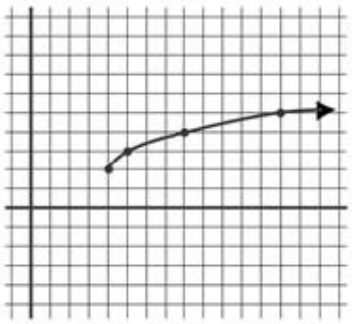


GO ON

3 When solving the problem $\sqrt{x} = -5$, Sam squared both sides and got 25 for his answer. Was he correct? Why or why not?

4 What is the inverse function of the following equation?

$$y = \sqrt{2x+3}$$

5 The equation $t = \sqrt{\frac{d}{16}}$ gives the time, *t*, in seconds for an object dropped from a height of *d,* feet to reach the ground. Determine a reasonable domain and range for the problem.

6 Describe the changes on the graph when the equation is changed from $y = \sqrt{x}$ to $y = \sqrt{x+5}+2$.

7 The equation for the volume of a cone is:

$$V = \frac{1}{3}\pi r^2 h$$

a. Solve the equation for *r.*

b. Use your equation to find the approximate radius of a cone having a height of 15 inches and a volume of 1,005 cubic inches.

8 Which of the following functions has a domain of $x \geq 5$?

F $y = -5\sqrt{x+2}-1$

G $y = 4\sqrt{x-5}+2$

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

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

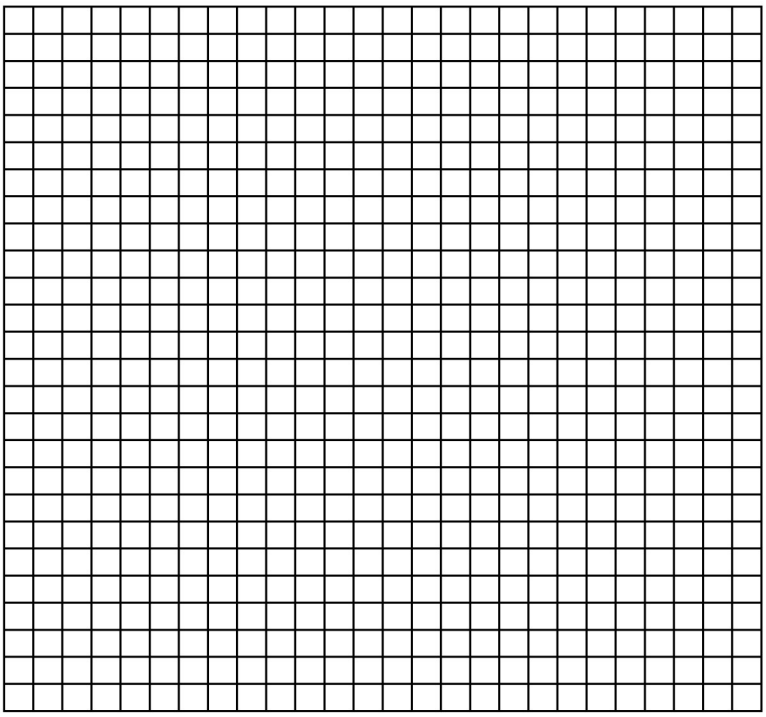
9 Solve over the set of real numbers:

$$x - 2 = \sqrt{2x-1}, \quad x \geq \frac{1}{2}$$

GO ON

10 Graph:

$$y \geq 2\sqrt{x-1}+3$$



STOP

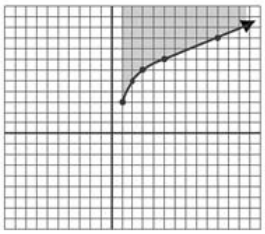
Test Key

Mathematics Algebra II Unit 06: Square Root Functions, Equations, and Inequalities 2013-2014

##	Item #	Correct Answer	Primary SE	Secondary SE	Obj/Cat
1	MA200307RX	C	A2.9(B) [S]	None	STAAR: Algebra II 5
2	MA21089624D	G	A2.9(A) [S]	None	STAAR: Algebra II 5
3	MA21088179D	Sam was wrong; his answer does not check. The problem is saying that the principle (positive) square root of x is a negative. The equation has no solution.	A2.9(C) [S]	None	STAAR: Algebra II 5
4	MA21089924D	$y = \frac{x^2 - 3}{2}$	A2.9(G) [S]	None	STAAR: Algebra II 5
5	MA200309RX	Domain: d ≥ 0 Range: t ≥ 0	A2.9(C) [S]	None	STAAR: Algebra II 5
6	MA21088173D	It shifts 5 to the left and up 2.	A2.9(A) [S]	None	STAAR: Algebra II 5
7	MA21088346D	a. $r = \sqrt{\frac{3v}{\pi h}}$ b. Approximately 8 inches.	A2.9(F) [R]	None	STAAR: Algebra II 5
8	MA21089627D	G	A2.9(A) [S]	None	STAAR: Algebra II 5
9	MA21088338D	5	A2.9(D) [S]	None	STAAR: Algebra II 5
10	MA200332RX	0 to 3	A2.9(E) [S]	None	STAAR: Algebra II 5

Scoring Rubrics

10



3	The response shows full understanding of the essential mathematics applicable to the task and a sound approach toward solution that includes logical reasoning and appropriate conclusions. Computation and procedures used are generally accurate, but the response may contain minor computational or procedural flaws that do not detract from evidence of full understanding.
2	The response shows a satisfactory understanding of the essential mathematics applicable to the task, but reasoning may not be completely clear, and there may be minor flaws in computation and/or use of procedures as a result of carelessness or non-essential misunderstandings. The flaws do not detract from evidence of satisfactory understanding. A score of 2 may also be earned if the response is partially correct but some aspect of the task is omitted.
1	The response indicates limited understanding of the essential mathematics applicable to the task. While an effort is made to address the task, omissions and/or errors related to insufficient mathematical knowledge or incorrect application of skills or procedures bring into question that student's ability to deal successfully with tasks of this type.
0	The response indicates no understanding of the essential mathematics applicable to the task, or there is no response.