Date: _____

ONE-TO-ONE FUNCTIONS COMMON CORE ALGEBRA II HOMEWORK

FLUENCY

1. Which of the following graphs illustrates a one-to-one relationship?



2. Which of the following graphs does not represent that of a one-to-one function?



3. In which of the following graphs is each input not paired with a unique output?



- 4. In which of the following formulas is the variable y a one-to-one function of the variable x? (Hint try generating some values either in your head or using TABLES on your calculator.)
 - (1) $y = x^2$ (3) y = 2x

(4) y = 5

 $(2) \quad y = |x|$

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5. Which of the following tables illustrates a relationship in which y is a one-to-one function of x?

(1)									(4)			1
(1)	x	У	(2)	х	у	(3)	x	у	(4)	х	у	
	-2	-1		-2	-8		-2	-5		-2	11	
	0	-3		-1	-1		-1	-4		-1	-4	
	2	-1		0	0		0	-1		0	-5	
	4	1		1	1		-1	7		1	-4	
	6	3		2	8		-2	5		2	11	

APPLICATIONS

6. A recent newspaper gave temperature data for various days of the week in table format. In which of the tables below is the reported temperature a one-to-one function of the day of the week?

(1)	x	у	(2)	x	у	(3)	x	у	(4)	x	у	
	Mon	75		Mon	75		Mon	58		Mon	56	
	Tue	68		Tue	72		Tue	52		Tue	58	· · · · · · · · · · · · · · · · · · ·
	Wed	65		Wed	68		Mon	81		Mon	85	(1)
	Thu	74		Thu	72		Tue	76		Tue	85	

- 7. Physics students drop a basketball from 5 feet above the ground and its height is measured each tenth of a second until it stops bouncing. The height of the basketball, h, is clearly a function of the time, t, since it was dropped.
 - (a) Sketch the general graph of what you believe this function would look like.
- (b) Is the height of the ball a one-to-one function of time? Explain your answer.



REASONING

8. Consider the function f(x) = round(x), which rounds the input, *x*, to the nearest integer. Is this function one-to-one? Explain or justify your answer.

No, this function is not one-to-one. Many outputs will be repeated. For example:

f(3.2) = round(3.2) = 3f(2.7) = round(2.7) = 3



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