New England Common Assessment Program

Practice Test Resource Material

Grade 7

Mathematics

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Grade 7 Mathematics

Session 1—Non-Calculator

Position Number	Item Type	Correct Answer	Content Strand	GLE Stem Number	Depth-of-Knowledge Level
1	Multiple-choice (1 pt.)	A	Geometry & Measurement	1	2
2	Multiple-choice (1 pt.)	C	Numbers & Operations	4	2
3	Multiple-choice (1 pt.)	A	Geometry & Measurement	3	1
4	Multiple-choice (1 pt.)	D	Functions & Algebra	3	2
5	Short-answer (1 pt.)	N/A	Numbers & Operations	4	3
6	Short-answer (2 pts.)	N/A	Geometry & Measurement	3	2
			Functions & Algebra	1	
7	Short-answer (2 pts.)	N/A	Data, Statistics & Probability	1	2

Session 2—Calculator Active

Position Number	Item Type	Correct Answer	Content Strand	GLE Stem Number	Depth-of-Knowledge Level
8	Multiple-choice (1 pt.)	C	Numbers & Operations	1	2
9	Multiple-choice (1 pt.)	B	Geometry & Measurement	5	2
10	Multiple-choice (1 pt.)	C	Functions & Algebra	1	2
11	Multiple-choice (1 pt.)	D	Data, Statistics & Probability	4	1
12	Short-answer (1 pt.)	N/A	Functions & Algebra	1	3
13	Constructed-response (4 pts.)	N/A	Numbers & Operations	3	3

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Non-Calculator Short-Answer Item (2 points)

6 a. A pyramid has a hexagon for its base. How many edges does the pyramid have?

b. A pyramid has a base that is a polygon with n sides. Use n to write an expression that represents the number of edges the pyramid has.

Scoring Guide

Score	Description
2	2 correct answers.
1	1 correct answer.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Sample Response:

Part a: 12

Part b: $2n$ or $n + n$

* All students were provided the same amount of space in which to write their answers. For the purposes of this document, extraneous white space was removed from each student work sample to save space.

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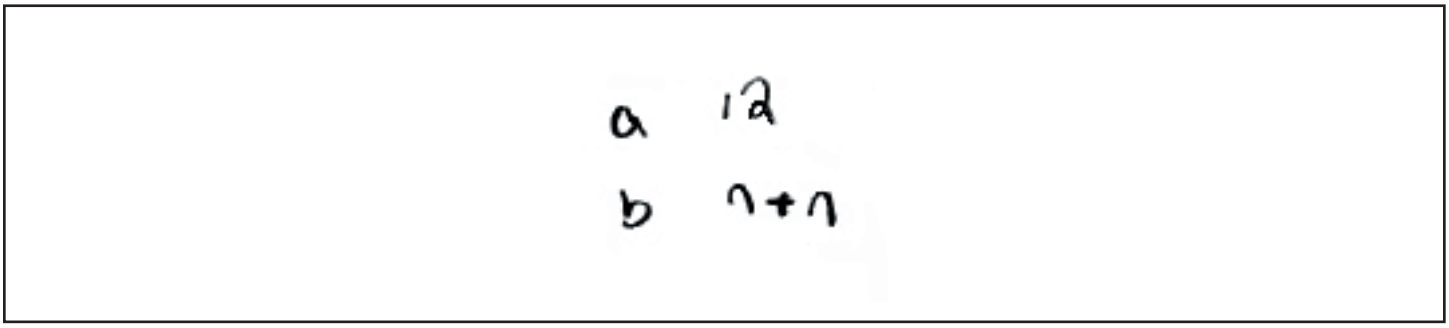
Sample 2-Point Response



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Sample 1-Point Response

a. The pyramid has 12 edges.

b. $n + 7 = 9 + 10$

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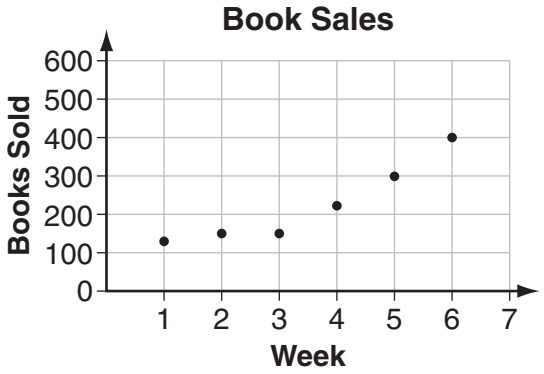
Calculator-Active Short-Answer Item (2 points)

7 The graph below shows sales at a bookstore each week.



a. What was the first week when more than 200 books were sold?

b. Predict how many books will likely be sold in Week 7.

Scoring Guide

Score	Description
2	2 points.
1	1 point.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Training Notes:

Part a: 1 point for the correct answer (Week 4)

Part b: 1 point for an acceptable prediction (between 480 and 550 books)

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Sample 2-Point Response

a. week 4.
b. 500 books.

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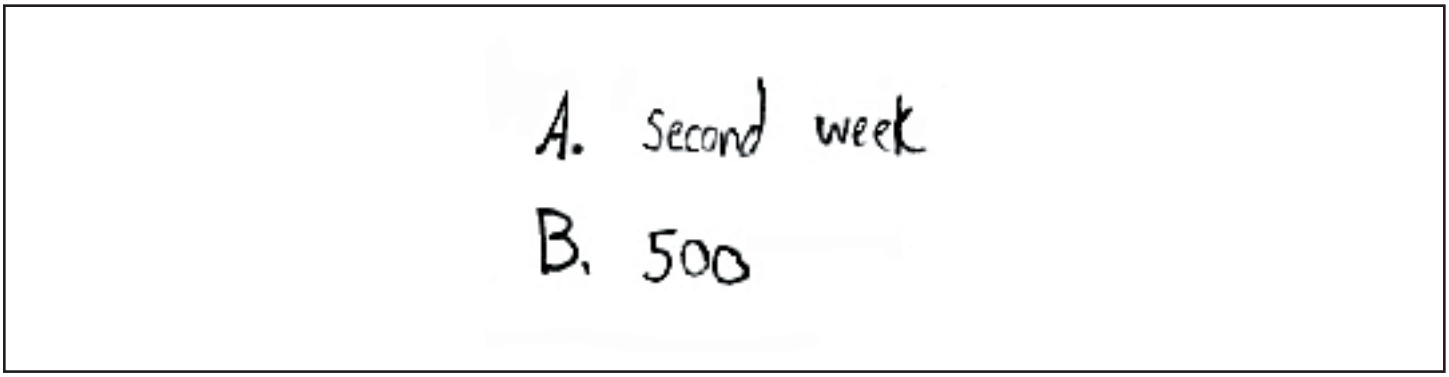
Sample 1-Point Response



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Calculator-Active Constructed-Response Item (4 points)

13 Copy the tables into your Student Answer Booklet.

a. Complete the tables.

Table 1

x	2^x
1	2
2	
3	8
4	
5	
6	

Table 2

y	4^y
1	4
2	
3	64
4	
5	
6	

b. What value of y makes $2^8 = 4^y$ true?

c. If $2^x = 4^y$, what **must** be true about the values of x and y?

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Calculator-Active Constructed-Response Item (4 points)

Scoring Guide

Score	Description
4	4 points.
3	3 points.
2	2 points.
1	1 point. OR Student shows minimal understanding of exponents and bases.
0	Response is incorrect or irrelevant.
Blank	No response.

Training Notes:

Part a: 2 points tables are completed correctly.
OR
1 point tables contain 1 or 2 errors.

Part b: 1 point for correct answer, 4.

Part c: 1 point for correct answer.

Sample Response:

Part a:

Table 1

x	2^x
1	2
2	4
3	8
4	16
5	32
6	64

Table 2

y	4^y
1	4
2	16
3	64
4	256
5	1024
6	4096

Part b: 4

Part c: $x = 2y$, $y = \frac{1}{2}x$, or equivalent or verbal statement, e.g. the exponent for 2 is double the exponent of 4.

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Sample 4-Point Response

table 1

a)

x	2^x
1	2
2	4
3	8
4	16
5	32
6	64

4	4^4
1	4
2	16
3	64
4	256
5	1024
6	4096

b) 4

c) 4 will always be half of x.

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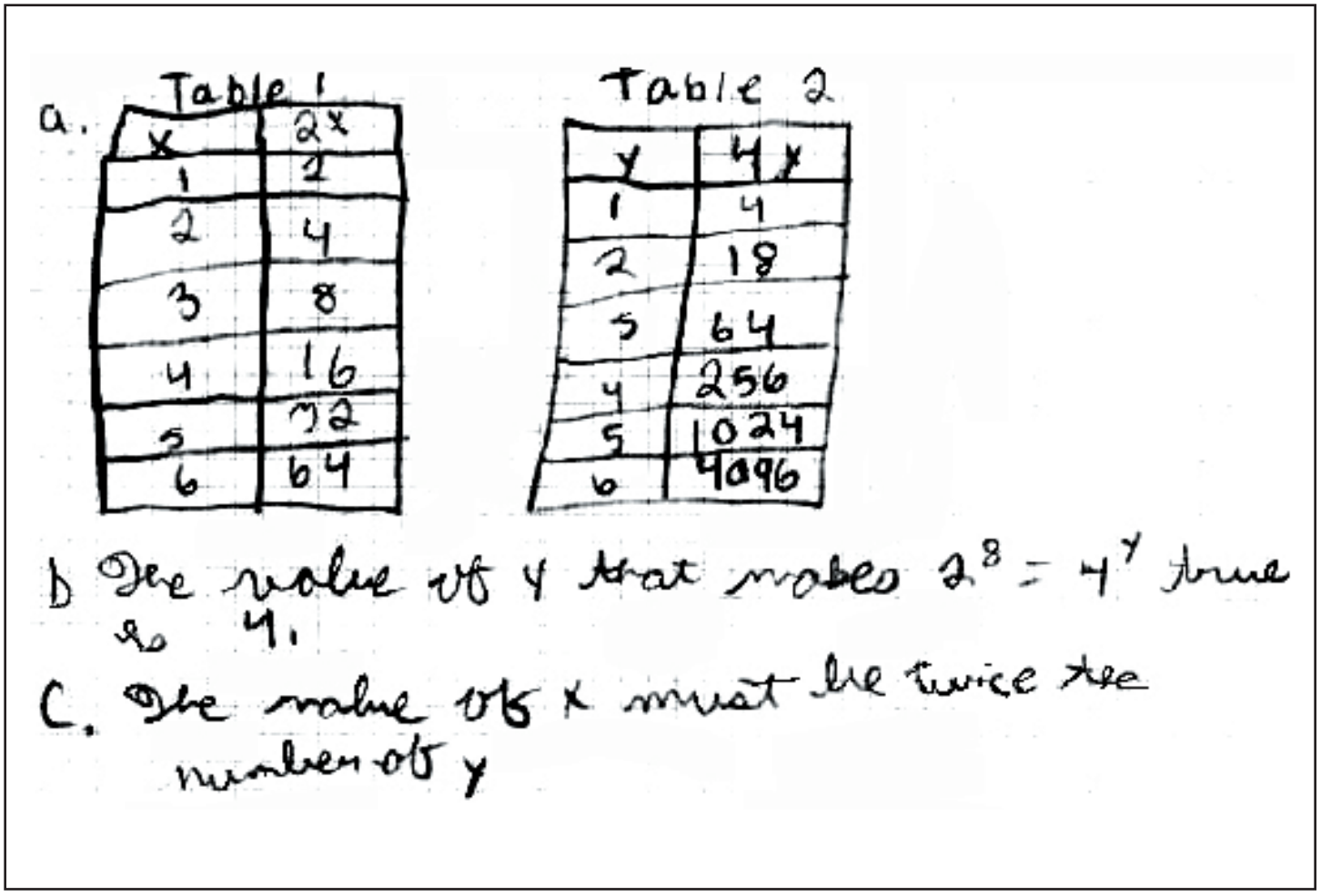
Sample 3-Point Response



a.

Table 1

x	2^x
1	2
2	4
3	8
4	16
5	32
6	64

Table 2

y	4^y
1	4
2	18
3	64
4	256
5	1024
6	4096

b. The value of 4 that makes $2^8 = 4^y$ true is 4.

c. The value of x must be twice the number of y

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Sample 2-Point Response A

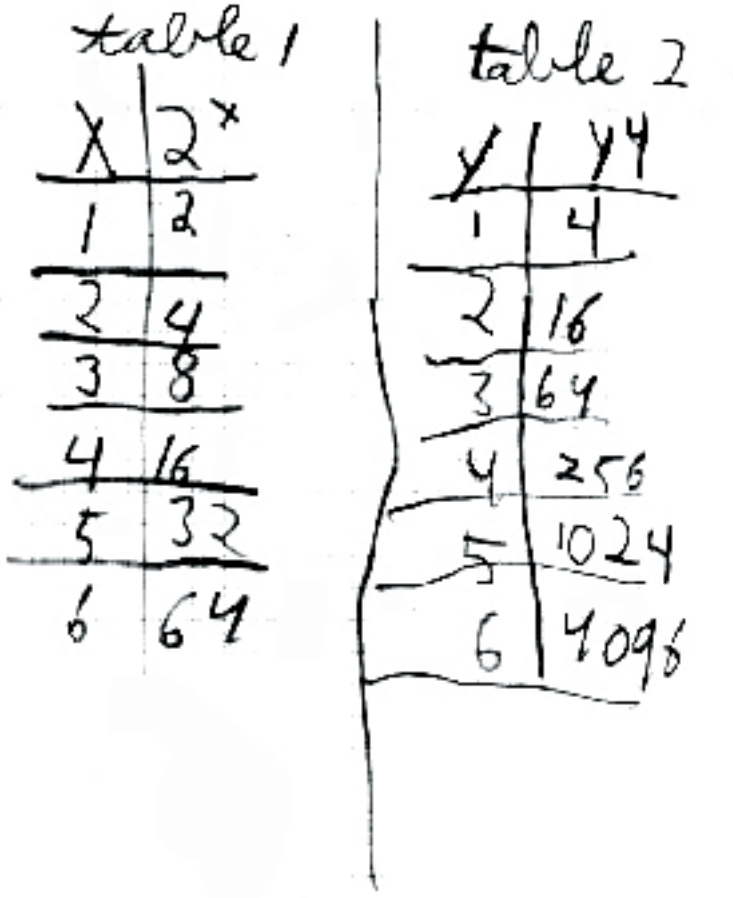


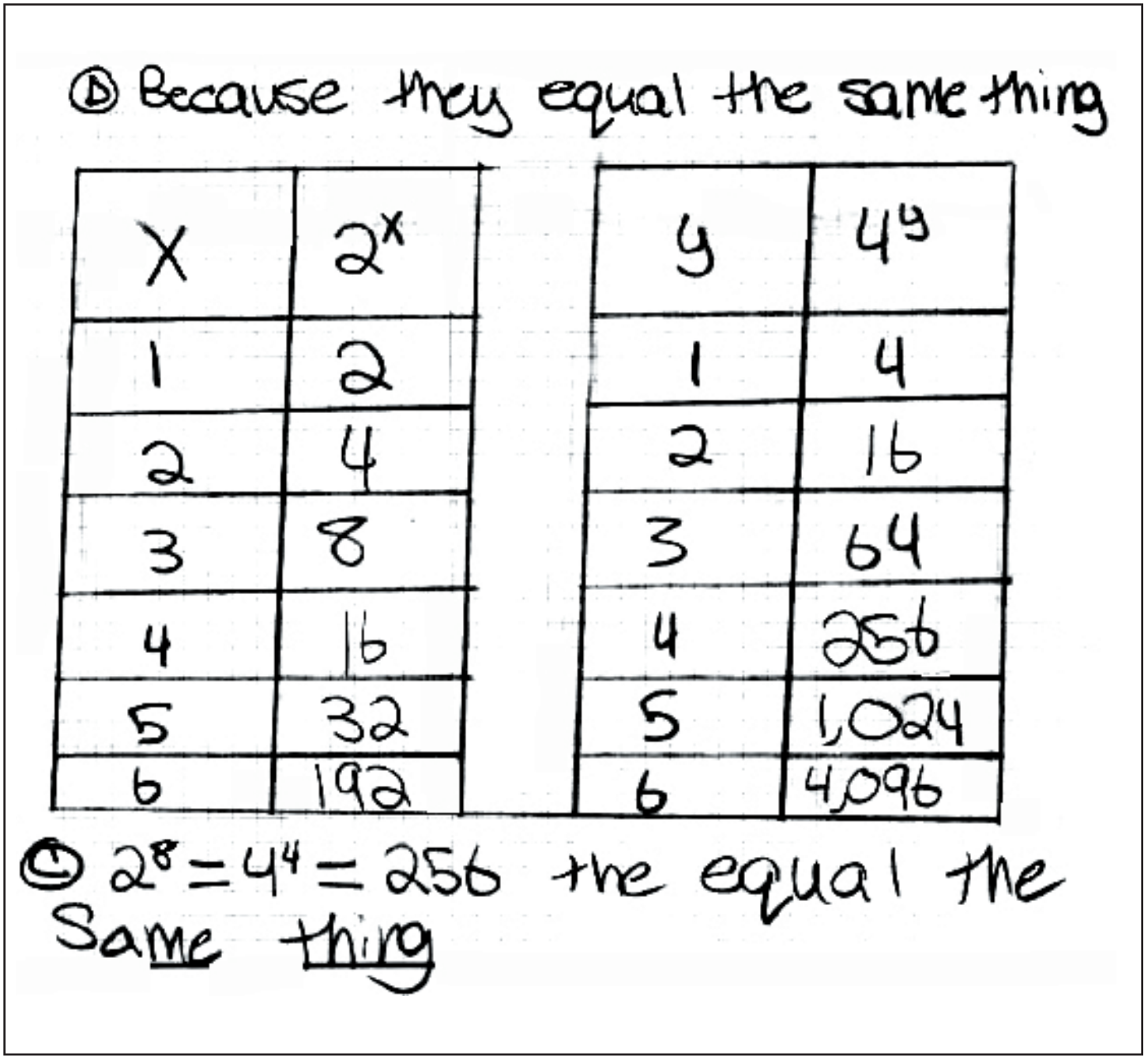
table 1

X	2^x
1	2
2	4
3	8
4	16
5	32
6	64

table 2

Y	Y^4
1	4
2	16
3	64
4	256
5	1024
6	4096

Sample 2-Point Response B



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Sample 1-Point Response A

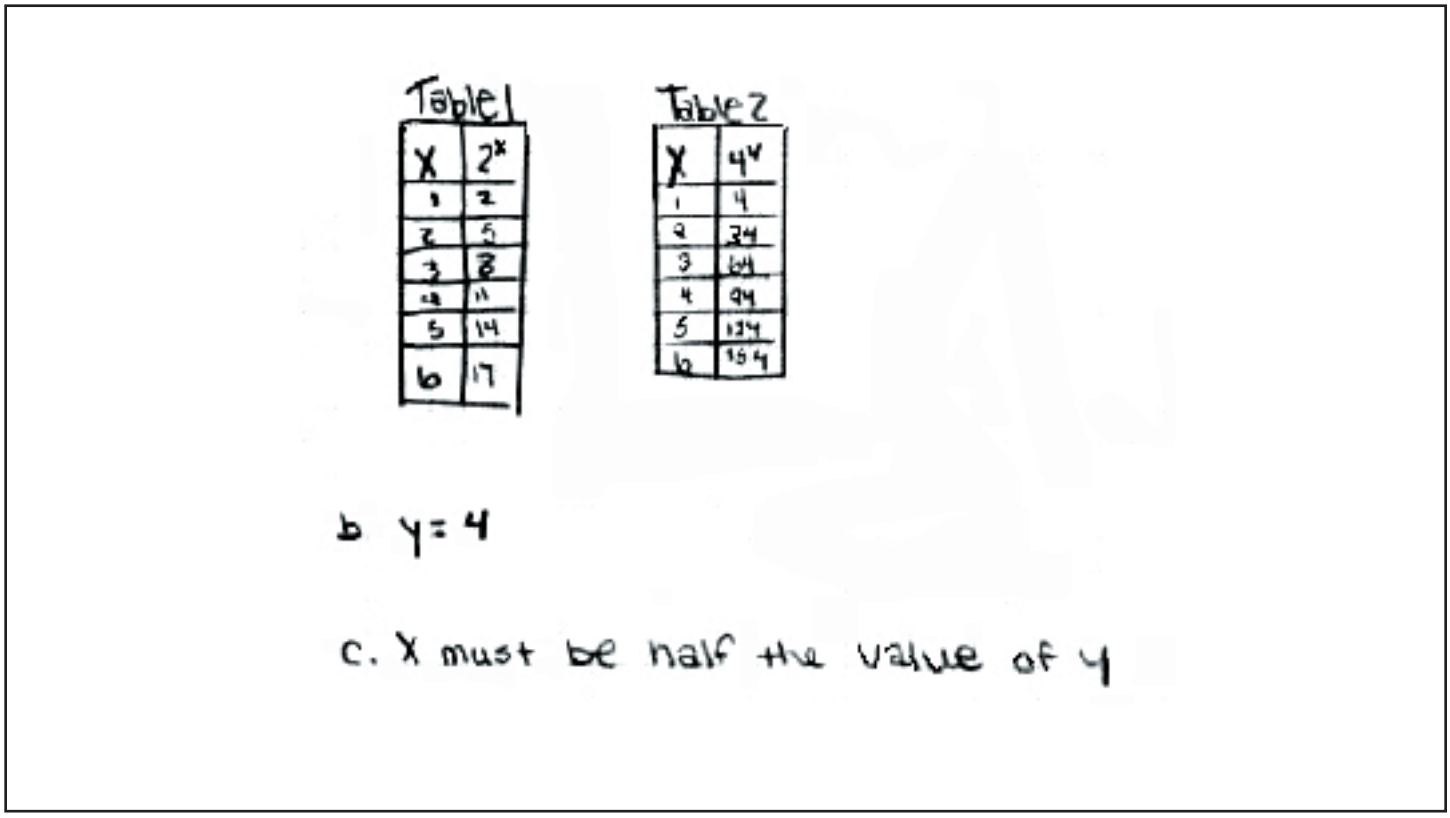

Table 1

X	2^x
1	2
2	5
3	8
4	11
5	14
6	17

Table 2

X	4^y
1	4
2	24
3	64
4	94
5	124
6	154

b $y = 4$

c. X must be half the value of y

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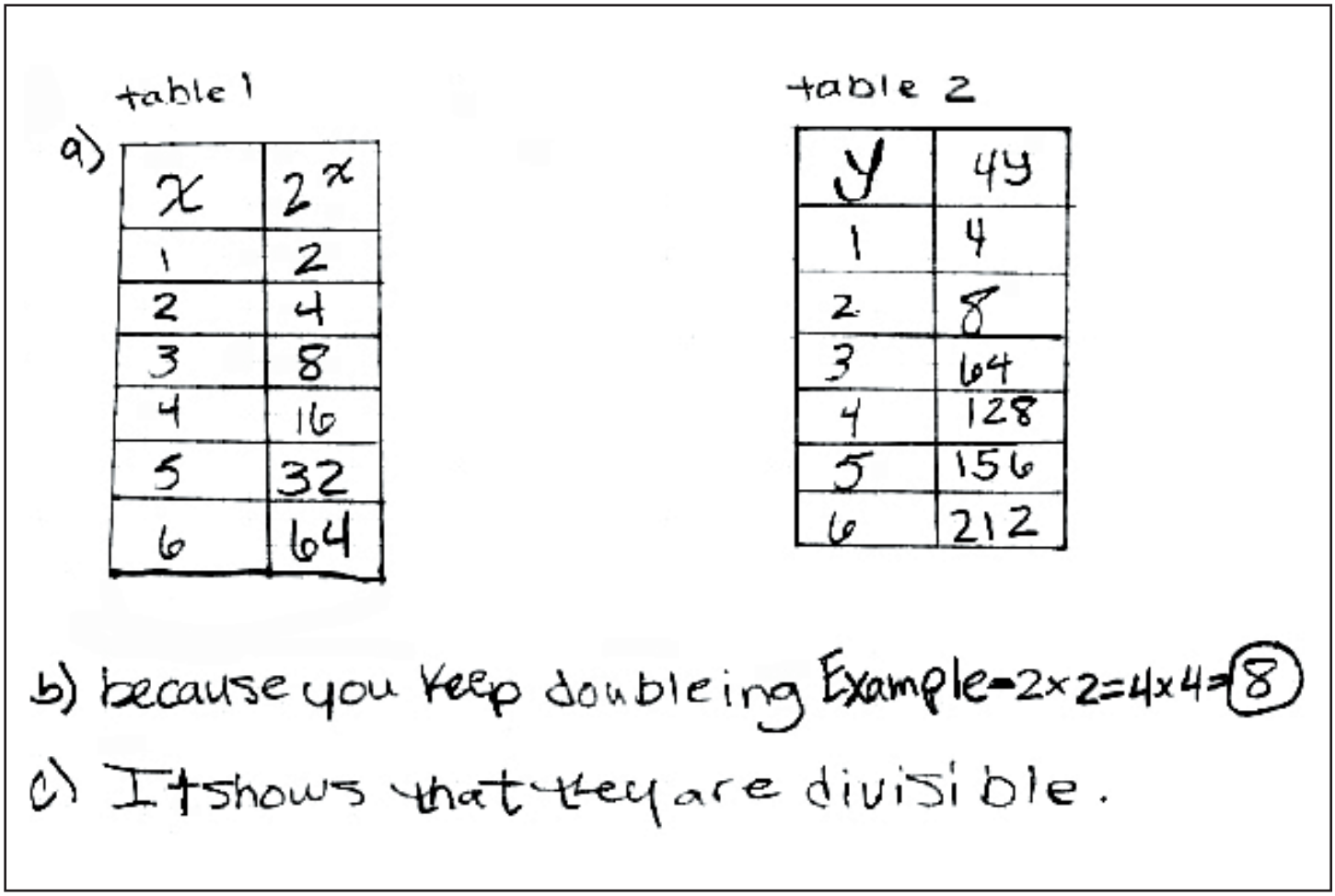
Sample 1-Point Response B



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Sample 0-Point Response

tabel 1

x	2^x
1	2
2	4
3	8
4	8
5	10
10	20

tabel 2

y	4^y
1	4
2	
3	64
4	16
5	
6	

b. y=2

c. X, y have to equal 2 in order for 2^x to equal 4^x.