RICAS Grade 5 Mathematics
Paper-Based Practice Test Answer Key

Session 1

PBT Item No.	Standard	Item Type*	Max Points	Correct Answer**
1	5.NBT.B.5	SR	1	D
2	5.NF.A.2	SR	1	D
3	5.G.A.1	SR	1	B
4	5.NF.B.4	SR	1	A
5	5.NBT.A.4	SR	1	A,D,F
6	5.G.A.2	CR	4	*See page 2*
7	5.NF.B.5	SR	1	B,C,E
8	5.NBT.B.7	SR	1	B
9	5.MD.B.2	SR	1	C
10	5.OA.A.1	SR	1	C
11	5.NBT.A.1	SR	1	A,F
12	5.NF.B.7	SR	1	B
13	5.NBT.A.3	SA	1	63.546
14	5.MD.C.5	CR	4	*See page 3*
15	5.NF.B.3	SR	1	A
16	5.MD.C.3	SR	1	C
17	5.NF.B.5	SR	2	B,E,F;A
18	5.NF.B.6	SR	1	A
19	5.MD.A.1	SR	1	C
20	5.NBT.B.6	SR	1	D

Session 2

PBT Item No.	Standard	Item Type*	Max Points	Correct Answer**
21	5.NF.B.7	SR	1	B
22	5.NBT.A.3	SR	1	A
23	5.MD.A.1	SR	1	A
24	5.OA.A.1	SR	1	C
25	5.NBT.A.4	SA	1	18
26	5.G.B.4	SR	1	C
27	5.NBT.B.7	CR	4	*See page 4*
28	5.NF.A.1	SR	1	D
29	5.NBT.A.1	SR	1	C
30	5.MD.C.4	SR	1	B
31	5.NF.B.3	SR	1	B
32	5.NBT.A.2	SR	1	C
33	5.NF.A.2	SR	1	D
34	5.NBT.A.2	SR	1	D
35	5.OA.B.3	CR	4	*See page 5*
36	5.G.B.3	SR	1	A,D,E
37	5.MD.C.5	SR	1	B
38	5.OA.A.2	SR	2	D;A
39	5.NBT.B.6	SR	1	A
40	5.NF.B.4	SR	1	C

*Mathematics item types are selected-response (SR), short-answer (SA), and constructed-response (CR).

**Answers are provided here for selected-response and short-answer items only. Pages 2–5 of this document provide sample responses and scoring guidelines for constructed-response items.

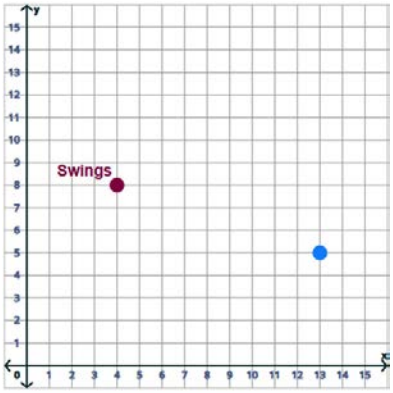
Scoring Guide for PBT Item #6: Constructed-Response Item

Score	Description
4	The student response demonstrates an exemplary understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. The student correctly graphs given ordered pairs on a coordinate plane, gives the ordered pair of a point on a coordinate plane, and interprets coordinate values of points in the context of the situation.
3	The student response demonstrates a good understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result, the response merits 3 points.
2	The student response demonstrates a fair understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation.
0	The student response contains insufficient evidence of an understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. As a result, the response does not merit any points.

Sample Response:

The following are the most common correct answers. Other versions of the correct answers also receive credit.

Part A



Part B

$(4, 8)$

Part C

$(9, 2)$ or $(9, -2)$ or $(-9, -2)$ or $(-9, 2)$

Part D

Any two of the following ordered pairs: $(4, 11), (4, 5), (1, 8), (7, 8)$; I started at the swings and I counted up 3 units, which was 11 so I got $(4, 11)$. I then counted down 3 units, which was 5 so $(4, 5)$. OR other correct explanations

Scoring Guide for PBT Item #14: Constructed-Response Item

Score	Description
4	The student response demonstrates an exemplary understanding of the Measurement and Data concepts involved in relating volume to the operations of multiplication and addition and solving real-world and mathematical problems involving volume. The student correctly determines the volume of a cube and a right rectangular prism given their dimensions, uses the volumes of the cube and the rectangular prism to solve a real-world problem, and finds the possible dimensions of a rectangular prism with a given volume.
3	The student response demonstrates a good understanding of the Measurement and Data concepts involved in relating volume to the operations of multiplication and addition and solving real-world and mathematical problems involving volume. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result, the response merits 3 points.
2	The student response demonstrates a fair understanding of the Measurement and Data concepts involved in relating volume to the operations of multiplication and addition and solving real-world and mathematical problems involving volume. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Measurement and Data concepts involved in relating volume to the operations of multiplication and addition and solving real-world and mathematical problems involving volume.
0	The student response contains insufficient evidence of an understanding of the Measurement and Data concepts involved in relating volume to the operations of multiplication and addition and solving real-world and mathematical problems involving volume. As a result, the response does not merit any points.

Sample Response:

The following are the most common correct answers. Other versions of the correct answers also receive credit.

Part A

8 (cubic inches); $2 \times 2 \times 2 = 8$

Part B

2,880 (cubic inches); $12 \times 240 = 2880$

Part C

360; $2880 \div 8 = 360$

Part D

$h = 10(in.), l = 80(in.), w = 10(in.)$; $10 \times 80 \times 10 = 8000$ OR any set of dimensions that result in a volume of 8,000 cubic inches and in which each dimension is a multiple of 2.

Scoring Guide for PBT Item #27: Constructed-Response Item

Score	Description
4	The student response demonstrates an exemplary understanding of the Number and Operations in Base Ten concepts involved in adding, subtracting, multiplying, and dividing decimals to hundredths using concrete models or drawings, strategies based on place value, properties of operations, or the relationship between addition and subtraction and between multiplication and division, and relating the strategy to a written method and explaining the reasoning used. The student correctly adds, subtracts, multiplies, and divides decimals to hundredths in problem-solving situations and explains the reasoning used when solving the problems.
3	The student response demonstrates a good understanding of the Number and Operations in Base Ten concepts involved in adding, subtracting, multiplying, and dividing decimals to hundredths using concrete models or drawings, strategies based on place value, properties of operations, or the relationship between addition and subtraction and between multiplication and division, and relating the strategy to a written method and explaining the reasoning used. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result, the response merits 3 points.
2	The student response demonstrates a fair understanding of the Number and Operations in Base Ten concepts involved in adding, subtracting, multiplying, and dividing decimals to hundredths using concrete models or drawings, strategies based on place value, properties of operations, or the relationship between addition and subtraction and between multiplication and division, and relating the strategy to a written method and explaining the reasoning used. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Number and Operations in Base Ten concepts involved in adding, subtracting, multiplying, and dividing decimals to hundredths using concrete models or drawings, strategies based on place value, properties of operations, or the relationship between addition and subtraction and between multiplication and division, and relating the strategy to a written method and explaining the reasoning used.
0	The student response contains insufficient evidence of an understanding of the Number and Operations in Base Ten concepts involved in adding, subtracting, multiplying, and dividing decimals to hundredths using concrete models or drawings, strategies based on place value, properties of operations, or the relationship between addition and subtraction and between multiplication and division, and relating the strategy to a written method and explaining the reasoning used. As a result, the response does not merit any points.

Sample Response:

The following are the most common correct answers. Other versions of the correct answers also receive credit.

Part A

\$19.50; $13 \times 1.50 = 19.50$

Part B

27.75; 11×0.75=8.25, 19.5+8.25=27.75

Part C

\$8.25. I divided 900 by 25 to find that each student needs to raise \$36. I subtracted 27.75 from 36 to find the student still needs to raise \$8.25.

Part D

5 bracelets and 1 pencil; 1.50+1.50+1.50+1.50+1.50=7.50, 7.50+0.75=8.25 OR other valid combinations that equal \$8.25

Scoring Guide for PBT Item #35: Constructed-Response Item

Score	Description
4	The student response demonstrates an exemplary understanding of the Operations and Algebraic Thinking concepts involved in generating two number patterns using two given rules, identifying relationships between corresponding terms, forming ordered pairs consisting of corresponding terms from the two patterns, and graphing the ordered pairs on a coordinate plane. The student correctly creates two patterns from two given rules, identifies their relationship, and uses this information to help solve a word problem.
3	The student response demonstrates a good understanding of the Operations and Algebraic Thinking concepts involved in generating two number patterns using two given rules, identifying relationships between corresponding terms, forming ordered pairs consisting of corresponding terms from the two patterns, and graphing the ordered pairs on a coordinate plane. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result, the response merits 3 points.
2	The student response demonstrates a fair understanding of the Operations and Algebraic Thinking concepts involved in generating two number patterns using two given rules, identifying relationships between corresponding terms, forming ordered pairs consisting of corresponding terms from the two patterns, and graphing the ordered pairs on a coordinate plane. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Operations and Algebraic Thinking concepts involved in generating two number patterns using two given rules, identifying relationships between corresponding terms, forming ordered pairs consisting of corresponding terms from the two patterns, and graphing the ordered pairs on a coordinate plane.
0	The student response contains insufficient evidence of an understanding of the Operations and Algebraic Thinking concepts involved in generating two number patterns using two given rules, identifying relationships between corresponding terms, forming ordered pairs consisting of corresponding terms from the two patterns, and graphing the ordered pairs on a coordinate plane. As a result, the response does not merit any points.

Sample Response:

The following are the most common correct answers. Other versions of the correct answers also receive credit.

Part A

Star Ticket Company

Number of Tickets	Total Cost Per Order ($)
1	28
2	36
3	44
4	52

Part B

Best Ticket Company

Number of Tickets	Total Cost Per Order ($)
1	17
2	27
3	37
4	47

Part C

3 dollars; $5 \times 10 = 50$, $50 + 7 = 57$, and $8 \times 5 = 40$, $40 + 20 = 60$, $60 - 57 = 3$

Part D

No. Since the Star Ticket Company charges $2 less per ticket than the Best Ticket Company, it will eventually have less total cost. The cost of 7 tickets (or more) is less at the Star Ticket Company than the Best Ticket Company. $76 < 77$ OR other correct response