

Algebra 1
Relations and Mapping Diagrams

Relations and Mapping Diagrams | A1-U04-P01

96 problems · Four activity formats

01	Answer Bank Challenge	24 tasks
02	Grid Rounds	24 tasks
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Topic focus
Across 96 tasks this topic asks for chosen method, complete mapping, and a reason rejecting the information-losing method and exact finite relation with representation evidence.
8 PDFs and a README; 75 buyer pages.

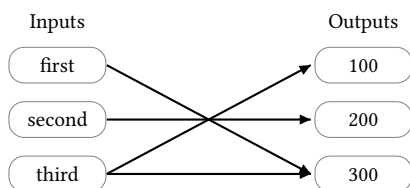
Algebra 1

Relations and Mapping Diagrams

Name: _____ Date: _____ Class: _____

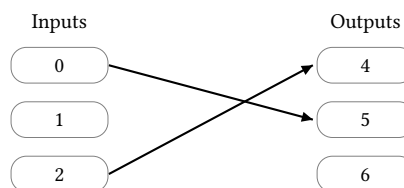
Answer each question and record the matching bank letter. Give exact values. Give the whole requested response, including any reasoning the question asks for.

Use arrow incidence rather than list position to write the relation.



Bank label: _____

Convert the diagram and name labels that create no pair.



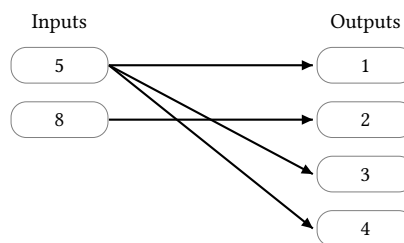
Bank label: _____

List the relation without collapsing rows that share an output.

Input	Output
-3	2
1	2
5	2
7	0

Bank label: _____

Record every destination reached from input 5 and the remaining arrow.



Bank label: _____

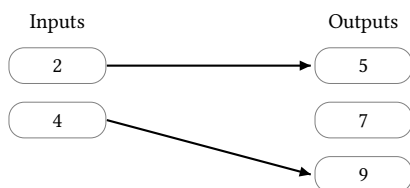
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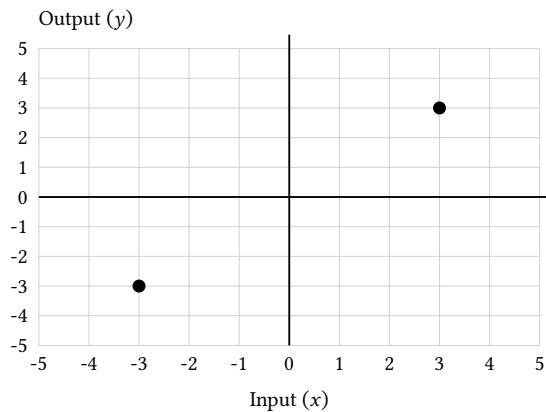
Name: _____ Date: _____ Class: _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. Give the whole requested response, including any reasoning the question asks for.

Read the relation and handle the unused output label correctly.



The graph window shows every integer from -5 to 5 on both axes. Which points belong to the relation?



Convert the unsorted rows without *re*-pairing them.

Input	Output
5	9
1	2
3	6

The complete diagram contains labels but no arrows. What relation is represented?



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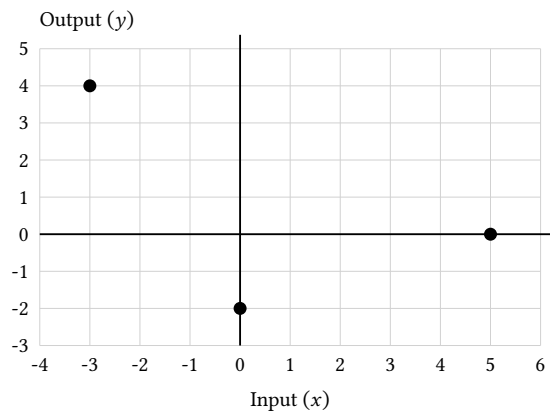
Relations and Mapping Diagrams

Name: _____ Date: _____ Class: _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: $\{(7, 3), (2, 8), (7, 5)\}$

An exact plot marks the three listed coordinates. Write its relation.



Your response: _____

Incoming: $\{(-3, 4), (0, -2), (5, 0)\}$

Preserve every association when converting the table.

Input	Output
2	5
2	8
4	9

Your response: _____

Incoming: $\{(1, 4), (3, 7)\}$

Produce the distinct relation from all shown rows.

Input	Output
7	3
2	8
7	5
2	8

Your response: _____

Incoming: $\{(1, 1), (2, 2), (3, 1)\}$

Here null means no association. Form the relation set from the exhaustive rows.

Input	Output
0	-1
0	null
-1	0
-1	0

Your response: _____

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Name: _____ Date: _____ Class: _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

A draft has arrows $1 \rightarrow a$ and $2 \rightarrow b$ for $R = \{(1, a), (1, b), (2, b)\}$. Choose a completion method: A, compare each required pair with the arrows already drawn; or B, draw every possible input-output arrow. Apply your choice and explain why the other method would change R .

The complete pair log is $(0, 4), (0, 4), (2, 6)$. To construct its relation diagram, choose A, remove repeated identical pairs before drawing arrows, or B, replace the two rows with input 0 by one row whose output is 8. Draw the resulting mapping and justify the choice.

For $R = \{(0, 0), (2, 0)\}$, use input labels $\{0, 1, 2\}$ and output labels $\{0, 3\}$. Choose A, omit labels equal to zero before drawing, or B, list every prescribed label and draw arrows only for the supplied pairs. Construct the diagram and explain how your method distinguishes zero from an unused label.

Represent $R = \{(A, 9), (B, 7), (B, 9)\}$ with outputs on the left and inputs on the right. Choose A, make every arrow point left-to-right, or B, make every arrow go from the first coordinate to the second coordinate. Construct the diagram and justify the direction.

Relations and Mapping Diagrams

Full Worked Solutions - excerpt

Worked example

Problem. Do matching label sets establish equality?

Answer. No; for instance (red, 1) occurs only in the first set.

Explanation and check.

Both coordinate inventories match, but every association is crossed.

Worked example

Problem. Does the repeated identical row make a different relation?

Answer. No; both represent $\{(2, 7), (4, 9)\}$.

Explanation and check.

An exact duplicate adds no new ordered pair to a set.