

Algebra 1
Relations, Function Tests & Notation | Algebra 1 | 3-Topic Bundle

3-topic bundle | 288 problems | Four activity formats

01 Relations and Mapping Diagrams

[View individual product and its full preview](#)

02 Is It a Function

[View individual product and its full preview](#)

03 Interpreting Function Notation

[View individual product and its full preview](#)

In every topic

Answer Bank Challenge	24 tasks
Grid Rounds	24 tasks
Match & Move	24 cards
Error Analysis & Strategy	24 tasks
Quick Answer Key and Full Worked Solutions	included
Teacher / Parent Use Guide and Terms of Use	included

Product previews

The following preview pages show the cover, all four activity formats, and worked examples for each included resource, in the listed order.

24 PDFs and 3 READMEs; 252 buyer PDF pages across the 3 products.

Preview pages are not included in the buyer page count. Check the list against resources you already own.

This is a fixed collection of the listed products. Purchase includes the existing individual resource files. To open a product's online preview, follow its title link and select View Preview.

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
03	Match & Move	24 cards
04	Error Analysis & Strategy	24 tasks
05	Quick Answer Key	96 answers
06	Full Worked Solutions	96 solutions
07	Teacher / Parent Use Guide	included
08	Terms of Use & License	included

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.

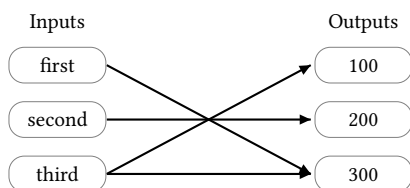
Algebra 1

Relations and Mapping Diagrams

Name: _____ Date: _____ Class: _____

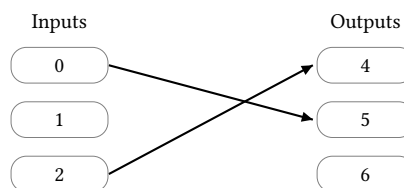
Answer each question and record the matching bank letter. Give exact values. Give the whole requested response, including any reasoning the question asks for.

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



Bank label: _____

Convert the diagram and name labels that create no pair.



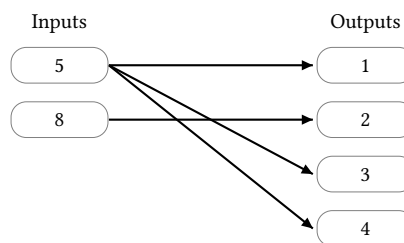
Bank label: _____

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: _____

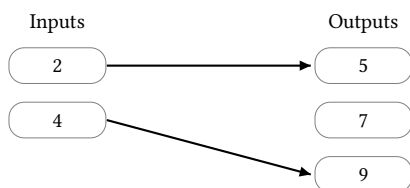
Algebra 1

Relations and Mapping Diagrams

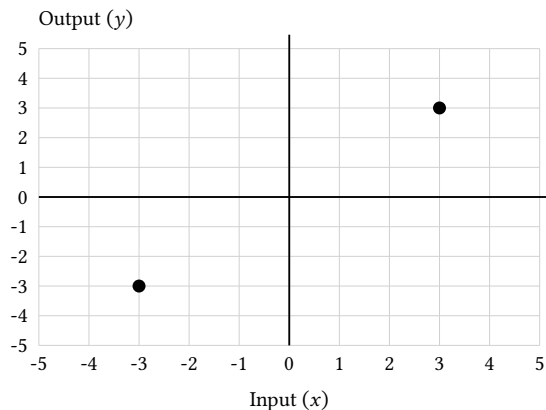
Name: _____ Date: _____ Class: _____

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?



Algebra 1

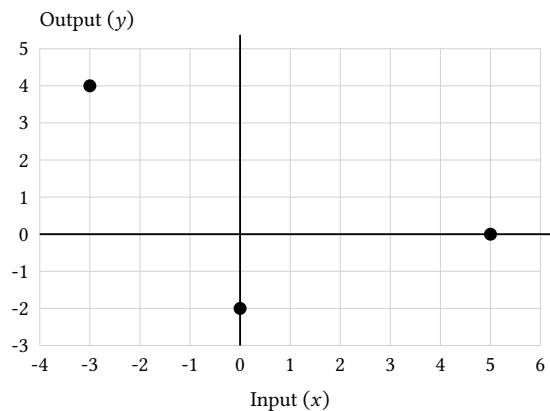
Relations and Mapping Diagrams

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: _____

Algebra 1

Relations and Mapping Diagrams

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.

Algebra 1

Is It a Function

Is It a Function | A1-U04-P02

96 problems · Four activity formats

01	Answer Bank Challenge	24 tasks
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Topic focus

Across 96 tasks this topic asks for complete function or impossibility proof, corrected judgment with decisive evidence, definition-based justification, function verdict with decisive evidence, two function verdicts with decisive evidence and valid repair or impossibility with evidence.

8 PDFs and a README; 125 buyer pages.

Algebra 1**Is It
a Function**

Name: _____ **Date:** _____ **Class:** _____

Answer each question and record a bank letter whose complete statement correctly answers that question. A letter may be used more than once or not at all. Give exact values and all reasoning requested by the question; a letter alone is not the whole requested response.

The declared domain is empty and the complete arrow list is empty. Does the function condition hold?

Bank label: _____

Algebra 1

Is It a Function

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.

Can a function satisfy a pair that appears on both the required and forbidden lists?

After consolidating exact duplicate rows, decide whether a genuine conflict remains.

Input	Output
3	4
3	4
6	8
9	1
6	8
3	-4

Algebra 1

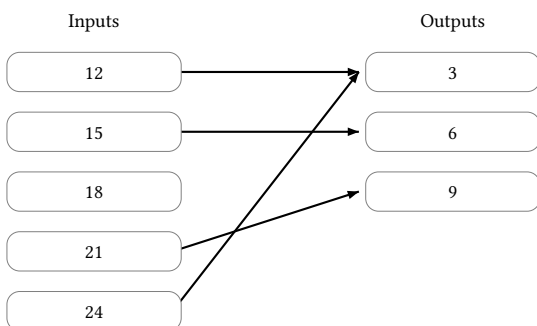
Is It
a Function

Name: _____ Date: _____ Class: _____

Begin at START. Answer the card completely, then match the entire answer and reasoning to another card's Incoming statement. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: No. For example, $x = 2$ gives the included points $(2, 2)$ and $(2, -2)$. Reasoning: Excluding the origin does not remove the two intersections at every positive x .

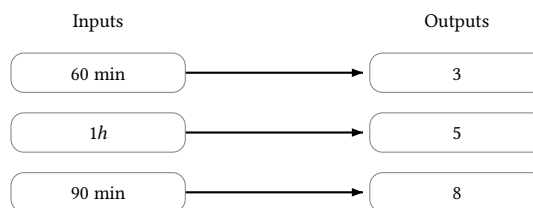
Scan all five declared inputs instead of judging only the drawn arrows.



Your response: _____

Incoming: Not a function on the stated domain; input 18 is unassigned. Reasoning: The four valid arrows do not compensate for the missing output at 18.

Interpret the declared domain as exact durations before testing output uniqueness.



Your response: _____

Algebra 1

Is It a Function

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.

Diagnose the error in the table verdict and give the corrected conclusion.

Input	Output
1	6
3	6
8	2

Audit whether row multiplicity creates distinct output values.

Input	Output
4	9
4	9
7	1

Is It a Function

Full Worked Solutions - excerpt

Worked example

Problem. The declared domain is empty and the complete arrow list is empty. Does the function condition hold?

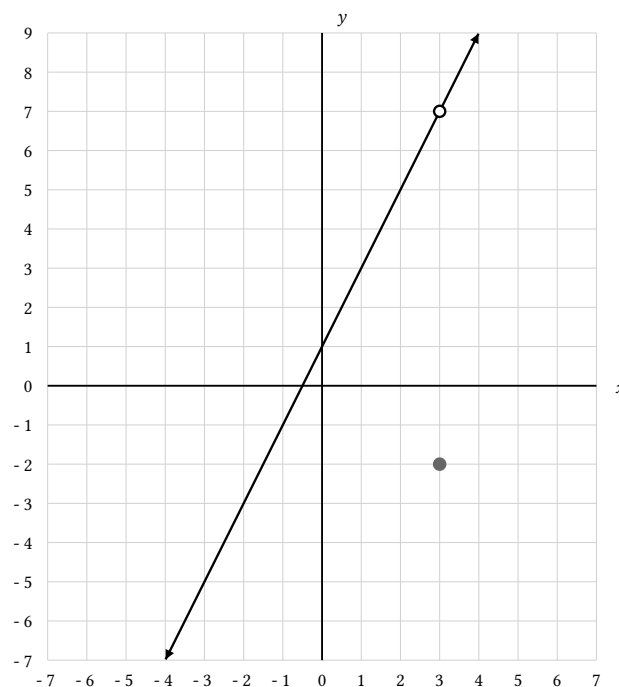
Answer. Yes. There is no declared input that lacks an output or has two outputs.

Explanation and check.

The one-output requirement is satisfied vacuously on the empty domain.

Worked example

Problem. The line has a hole and a replacement point at the same x . Apply the vertical line test to what is included.



Answer. Function. At $x = 3$ only $(3, -2)$ is included; all other x -values lie once on the line.

Explanation and check.

The open point $(3, 7)$ is not an intersection, so the closed replacement supplies one output.

Algebra 1
Interpreting Function Notation

Function Notation and Interpretation | A1-U04-P03

96 problems · Four activity formats

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Topic focus
Across 96 tasks this topic asks for notation statement or semantic interpretation.
8 PDFs and a README; 52 buyer pages.

Algebra 1

Interpreting Function Notation

Name: _____ Date: _____ Class: _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

The argument is an identifier, not a measurement. Interpret $M(204) = 57$. $M(i)$ is mass in grams of package with item code i. _____ Bank label: _____	Name the given quantity and requested quantity in the ticket instruction. $C(n)$ is cost for n tickets. The instruction is "Find $C(5)$." _____ Bank label: _____
The number 3 appears among known outputs. Does that make $p(3)$ defined? The declared domain is $\{2, 4, 6\}$. _____ Bank label: _____	What does $P(0) = 4$ reveal about this parking charge? $P(n)$ is parking charge in dollars for n completed hours. _____ Bank label: _____
Check the endpoint, a non-whole value, and an over-limit value. The declared domain is whole numbers from 0 through 12 inclusive. Consider the given statements $P(12), P(12.5), P(13)$. _____ Bank label: _____	What is supplied and what is sought in 'determine $R(a + 1)$'? _____ Bank label: _____
Read $R(12) = 0.35$ without interpreting 12 as a count of red pieces $R(k)$ is the ratio of red pieces to all pieces in sample k. _____ Bank label: _____	Identify the role of $b + 3$ without solving the equation. The instruction is "Solve $T(x) = b + 3$ for the possible x-values." _____ Bank label: _____

Algebra 1

Interpreting Function Notation

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. A value without its unit is not a complete answer.

Use east-positive input and upward-positive output conventions $e(x)$ is elevation change in meters at x kilometers east of camp. Two kilometers west of camp, elevation is 11 meters lower than at camp.	Resolve the date offset and measurement in $R(-3) = 0.8$. $R(d)$ is rainfall in millimeters on the day d days relative to July 10.
Interpret $I(6) = 24$ using both measurement units. $I(d)$ is light intensity in lumens at depth d meters.	Treat the coordinate label as one argument and encode the reading. $Z(i)$ is pressure in kilopascals for sensor position i, where an ordered pair labels a position. Sensor position $(2, -1)$ reads 98 kilopascals.
Describe what happens after f receives a in $3(f(a) - 2)$.	Separate the roles in the two stages before any calculation. The two instructions are: First report $S(0)$. Then identify every t with $S(t) = S(0)$.

Algebra 1

Interpreting Function Notation

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: Exchanging 50 US dollars yields 7,250 yen. Use the row with input 5 to write one equation for w. <table border="1" data-bbox="151 527 797 648"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>-3</td> <td>9</td> </tr> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>5</td> <td>-6</td> </tr> </tbody> </table> Your response: _____	Input	Output	-3	9	0	2	5	-6	Incoming: $w(5) = -6$. Treat each coordinate pair as one input object and classify both expressions. The declared domain is $\{(0, 0), (1, 2)\}$. Consider the given statements $V((1, 2)), V(1)$. Your response: _____
Input	Output								
-3	9								
0	2								
5	-6								
Incoming: $Q(3)$ and $Q(3.0)$ are undefined; $Q(-3)$ is defined State the exchange direction encoded by $Y(50) = 7250$. $Y(d)$ is yen received when d US dollars are exchanged. Your response: _____	Incoming: $(6, -11)$. Encode the instantaneous rate observation. $r(t)$ is speed in meters per second at time t seconds. At 4 seconds, the speed is 7.5 meters per second. Your response: _____								
Incoming: Divide n by 2 first and use $\frac{n}{2}$ as q's input. Convert the date to an offset and write the function statement. $R(d)$ is rainfall in millimeters d days relative to September 10. On September 13, rainfall is 4.6 millimeters. Your response: _____	Incoming: $(-2, 5)$. What graph point is represented by $m(3) = 3$? Your response: _____								

Algebra 1

Interpreting Function Notation

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.

Choose an efficient method, explain why it fits the given representation, and then complete the task exactly. Convert the graph-membership sentence to function notation.

Use the function N . The given statement is The point $(c, -d)$ is on the graph of N .

Complete the task, then compare the direct formula approach with an equivalent check. Explain why both support the same conclusion. State the generic ordered-pair form conveyed by $h(n) = 2n + 1$.

Choose an efficient method, explain why it fits the given representation, and then complete the task exactly. Write the table association $\text{small} \rightarrow \text{blue}$ using function C .

Input	Output
small	blue

Choose an efficient method, explain why it fits the given representation, and then complete the task exactly. Ignore the record ID and use the semantic headers to encode the row for Q .

Q-value	input	record ID
-8	3	R17

Interpreting Function Notation

Full Worked Solutions - excerpt

Worked example

Problem. The argument is an identifier, not a measurement. Interpret $M(204) = 57$.

$M(i)$ is mass in grams of package with item code i .

Answer. The package with item code 204 has a mass of 57 grams.

Explanation and check.

Code 204 selects the item; 57 grams is its measured output.

Worked example

Problem. Name the given quantity and requested quantity in the ticket instruction.

$C(n)$ is cost for n tickets. The instruction is "Find $C(5)$."

Answer. The count 5 tickets is given; the cost output is requested.

Explanation and check.

C takes ticket count as input and returns cost.