

TEACHER AND STUDENT RESOURCE

Reading Function Features in Context



NC Math 2 • NC.M2.F-IF.4

Interpreting Functions

Seven instructional sections with 30 multiple-choice and 30 open or performance tasks, teaching scripts, original mathematical visuals, generous workspaces, and worked keys.

Free sample | Contents

NC.M2.F-IF.4 | NC Math 2 mathematics

This sample contains 23 complete selected pages from the 126-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-17, 34-35, 64-65, 94-95

Representative activities

M01: sample PDF page(s) 17; original page(s) 16

M02: sample PDF page(s) 18; original page(s) 17

O01: sample PDF page(s) 19; original page(s) 34

O02: sample PDF page(s) 20; original page(s) 35

Selected teacher prompts and keys: original page(s) 64-65, 94-95

Using this sample

Read the preparation and access guidance before using a selected activity.
Keep teacher keys and private preparation pages separate from student copies.
Use the original resource contents to see the scope of the complete packet.

Complete paid download

The complete resource includes the full PDF task bank and teaching materials.

ALIGNMENT

Standard and learning targets

Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: domain and range, rate of change, symmetries, and end behavior.

T1 Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

T2 Calculate and interpret average rates of change with units, and distinguish output size, direction of change, constant rate and net change.

T3 Interpret symmetry and turning points in application graphs and tables, checking whether the contextual domain retains the full model's symmetry.

T4 Explain end behavior, limiting values and the limits of extrapolation without extending a model beyond its stated contextual domain.

Each item names its own target. The bank supports multiple sessions; do not assign all 60 tasks in one sitting.

NAVIGATION

Choose evidence deliberately

Warm-up: M01-M04 and O01-O04**I Do: M05-M08 and O05-O08****We Do: M09-M13 and O09-O13****Collaborative practice: M14-M18 and O14-O18****Independent practice: M19-M23 and O19-O23****Small-group reteach: M24-M27 and O24-O27****Exit ticket: M28-M30 and O28-O30**

T1: M01, M02, M04, M08, M09, M10, M16, M20, M21, M22, M24, O01, O02, O08, O11, O21, O23, O24

T2: M03, M07, M12, M14, M15, M19, M23, M25, M28, O03, O04, O05, O07, O12, O14, O15, O18, O22, O25, O28, O29

T3: M06, M13, M26, M29, O06, O10, O13, O16, O17, O20, O26

T4: M05, M11, M17, M18, M27, M30, O09, O19, O27, O30

DAILY LEARNING TARGETS

A multi-session teaching path

Session 1 Identify and represent

Learning target: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

Learning target: Calculate and interpret average rates of change with units, and distinguish output size, direction of change, constant rate and net change.

Use Warm-up, I Do, and early We Do tasks. Ask for a first response before showing the model.

Session 2 Explain and connect

Learning target: Calculate and interpret average rates of change with units, and distinguish output size, direction of change, constant rate and net change.

Learning target: Interpret symmetry and turning points in application graphs and tables, checking whether the contextual domain retains the full model's symmetry.

Learning target: Explain end behavior, limiting values and the limits of extrapolation without extending a model beyond its stated contextual domain.

Use We Do and collaborative tasks. Compare approaches and justify each step with the original conditions.

Session 3 Transfer independently

Learning target: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

Learning target: Calculate and interpret average rates of change with units, and distinguish output size, direction of change, constant rate and net change.

Learning target: Interpret symmetry and turning points in application graphs and tables, checking whether the contextual domain retains the full model's symmetry.

Learning target: Explain end behavior, limiting values and the limits of extrapolation without extending a model beyond its stated contextual domain.

Select independent items spanning the targets, reteach an evidenced gap, and use an unrehearsed exit item.

PLANNING

Materials, access and pacing

Materials

Pencils, erasers, straightedge, student pages, and optional graph paper. A calculator may support arithmetic after a learner states the intended relationship. No device or paid software is required.

Prerequisites

Function inputs and outputs, ordered pairs and graph axes, interval and finite-set notation, subtraction and division with units, quadratic symmetry, square-root values and positive inverse variation.

Pacing

Use a short diagnostic warm-up, a model and shared task in one session; collaborative and independent reasoning in later sessions; then targeted reteaching and an exit task. Select two to four tasks at a time based on evidence. Each section's full bank is reusable, not mandatory in one lesson.

Neutral access

Read directions aloud without interpreting the graph, enlarge a page, supply a writing or pointing response method, and allow a learner to dictate an explanation. Keep axes, units, data and mathematical demand unchanged.

Separate instruction from evidence

Keep the learner's first response. Record answer-supplying cues separately from access supports. A completed teacher graph or worked key is for discussion after independent work, never a student construction template.

Review convention

All quantities and units are defined in the task. Domains come from the stated application, not automatically from every algebraically valid input or the visible graph window. A recorded data set contains only its listed inputs unless a model or continuity assumption is given. Average rate means output change divided by input change over the specified interval, not an instantaneous rate. A zero average need not mean no motion or constant output. A bound is a maximum or minimum only when attained. Infinite-input limits describe an idealized extension only when its domain permits that extension; no physical apparatus is assumed capable of infinite speed, infinite pressure or zero positive volume.

TEACHER MODEL

Read the quantities before naming the features

A ball follows $h(t)=9-(t-3)^2$ meters for $0 \leq t \leq 6$ seconds. Interpret its domain, range, maximum and symmetry. Compare the average height-change rate over the whole flight with what happens during its first half.

The input is elapsed time, so the domain is $[0, 6]$ seconds; the output height runs through $[0, 9]$ meters. The vertex $(3, 9)$ means maximum height 9 m at 3 s. The graph is symmetric about $t=3$: for example $h(1)=h(5)=5$ m. The whole-flight average is $(h(6)-h(0))/6=(0-0)/6=0$ m/s, but the first-half average is $(9-0)/3=3$ m/s. The ball rises and falls rather than remaining at one height. The formula can be evaluated after $t=6$, but the stated flight model stops at the first return to ground.

VISUAL ANCHOR

A feature is a statement about two quantities

Start with the input and output, then connect every mathematical feature to the application and its stated domain.

Feature	Interpretation and check
Domain and range	What input values are allowed? What outputs actually occur? Check units, discrete values and endpoint inclusion.
Average rate	$[\text{output change}]/[\text{input change}]$. Use elapsed input difference and output units per input unit.
Symmetry	Equal outputs may occur at inputs equally spaced from an axis. Check whether both reflected inputs remain in the domain.
Extrema and endpoints	A highest or lowest value must be attained to be a maximum or minimum. An open endpoint can supply a bound without an extremum.
End behavior	Describe what outputs approach as permitted inputs grow or approach a boundary. A finite sample or viewing window does not establish an unrestricted limit.

A horizontal graph can have a nonzero height. An increasing graph can have decreasing interval average rates. Equal endpoint outputs can hide substantial changes in between.

REUSABLE REASONING GUIDE

Represent, justify, interpret

Name: _____ Date: _____

Givens, quantities and restrictions**Representation and calculation****Justification or check****Conclusion, domain and units**

WARM-UP

Teaching script

Core: 001 • T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

Optional bank: M01–M04; 001–004. Select tasks across more than one meeting if needed.

Suggested discussion/work time: 5–8 minutes. Adjust for access and evidence; this is not a speed criterion.

Display student page 001, including its visual when present. Ask learners to identify the two quantities and attach units before naming a domain, range or rate. Contrast whole-container input sets with continuous length and time intervals.

Core task

The graph represents a fountain droplet's height h in meters from release until it returns to ground; t is time in seconds. State the contextual domain and range, interpret both endpoints and the highest point, and explain why the average height-change rate from $t=1$ to $t=3$ is zero even though the droplet moves.

Teacher solution and discussion

The domain is $0 \leq t \leq 4$ seconds and the range is $0 \leq h \leq 4$ meters. The points $(0, 0)$ and $(4, 0)$ represent release at ground level and return to ground after 4 s. The highest point $(2, 4)$ means a maximum height of 4 m at 2 s. The graph gives $h(1)=h(3)=3$, so the average rate is $(3-3)/(3-1)=0$ m/s. Between those times the height first rises to 4 and then falls; equal endpoint heights do not mean the droplet remained still.

Evidence and response

Score identification of quantities, domain/range precision, rate calculation, unit interpretation and contextual justification separately. Require open/closed endpoints and discrete values where relevant. Record a swapped-axis error, a missing time denominator, an unsupported extrapolation and a confusion between limiting and attained values as different findings. A correct numerical rate without a clear statement of what changes per unit input is incomplete evidence. Use a new context to check transfer after reteaching.

Closure: Ask learners to state one feature they verified and one check they used. Use the worked key for M01 to compare all alternatives after evidence is collected.

I DO

Teaching script

Core: 005 • T2: Calculate and interpret average rates of change with units, and distinguish output size, direction of change, constant rate and net change.

Optional bank: M05–M08; O05–O08. Select tasks across more than one meeting if needed.

Suggested discussion/work time: 10–12 minutes. Adjust for access and evidence; this is not a speed criterion.

Display student page O05, including its visual when present. Use a curved radius graph and a symmetric height table. Calculate endpoint quotients aloud, then separate increasing output from the size of its average rate. Explain why repeated outputs at different inputs are allowed.

Core task

The graph models the radius r of a spreading spot in centimeters for $0 \leq t \leq 9$ minutes. Read the domain and range, calculate the average rates on $[0, 1]$ and $[4, 9]$, and use the results to distinguish “the radius is increasing” from “its interval average rates are increasing.”

Teacher solution and discussion

The domain is $[0, 9]$ minutes and range is $[0, 12]$ centimeters. The first average rate is $(4-0)/(1-0)=4$ cm/min. The later one is $(12-8)/(9-4)=4/5$ cm/min. The radius increases throughout the shown interval, yet the later average rate is smaller. Increasing output does not imply that successive interval average rates are increasing.

Evidence and response

Score identification of quantities, domain/range precision, rate calculation, unit interpretation and contextual justification separately. Require open/closed endpoints and discrete values where relevant. Record a swapped-axis error, a missing time denominator, an unsupported extrapolation and a confusion between limiting and attained values as different findings. A correct numerical rate without a clear statement of what changes per unit input is incomplete evidence. Use a new context to check transfer after reteaching.

Closure: Ask learners to state one feature they verified and one check they used. Use the worked key for M05 to compare all alternatives after evidence is collected.

WE DO

Teaching script

Core: 009 • T4: Explain end behavior, limiting values and the limits of extrapolation without extending a model beyond its stated contextual domain.

Optional bank: M09–M13; O09–O13. Select tasks across more than one meeting if needed.

Suggested discussion/work time: 10–15 minutes. Adjust for access and evidence; this is not a speed criterion.

Display student page O09, including its visual when present. Contrast the full algebraic graph with the contextual domain and the chosen display window. Test whether a claimed bound is attained, and compute average rates over unequal time intervals.

Core task

An idealized fixed-distance trip has travel time $T(v)=60/v$ hours at any constant speed $v>0$ km/h. Sketch the positive branch using the points at $v=20, 30, 60$. Describe the model's domain, range, behavior as $v \rightarrow \infty$ and as $v \rightarrow 0^+$, and explain why neither axis is reached.

Teacher solution and discussion

The sample points are $(20, 3)$, $(30, 2)$, $(60, 1)$. The domain is all positive speeds $v>0$ and the range is all positive travel times $T>0$. As v grows without bound, $60/v$ approaches 0 hours but remains positive; as v approaches 0 from above, time grows without bound. Speed 0 is excluded by division by zero and cannot complete the positive-distance trip in this model. A finite positive speed never gives zero travel time. The plotted arrows indicate continuation beyond the viewing window, not attained axis points.

Evidence and response

Score identification of quantities, domain/range precision, rate calculation, unit interpretation and contextual justification separately. Require open/closed endpoints and discrete values where relevant. Record a swapped-axis error, a missing time denominator, an unsupported extrapolation and a confusion between limiting and attained values as different findings. A correct numerical rate without a clear statement of what changes per unit input is incomplete evidence. Use a new context to check transfer after reteaching.

Closure: Ask learners to state one feature they verified and one check they used. Use the worked key for M09 to compare all alternatives after evidence is collected.

COLLABORATIVE PRACTICE

Teaching script

Core: O14 • T2: Calculate and interpret average rates of change with units, and distinguish output size, direction of change, constant rate and net change.

Optional bank: M14–M18; O14–O18. Select tasks across more than one meeting if needed.

Suggested discussion/work time: 15–20 minutes. Adjust for access and evidence; this is not a speed criterion.

Display student page O14, including its visual when present. Assign quantity reader, endpoint auditor, rate calculator and claim checker. Compare a corrected constant-rate graph, an inverse square-root relationship, symmetry in a restricted model and end behavior from limited data.

Core task

A reservoir starts with 12 L and drains at a constant 3 L/min until empty. A learner plots (0, 12), (2, 9), (4, 0) and joins the points. Audit the middle point while preserving the stated starting value and constant rate. Give the corrected graph, domain, range and one rate check on each half of the episode.

Teacher solution and discussion

The required rule is $V(t)=12-3t$, so at $t=2$ the volume is 6 L, not 9 L. Emptying occurs at $12-3t=0$, or $t=4$. The corrected graph is the straight segment through (0, 12), (2, 6), (4, 0). The domain is [0, 4] minutes and range [0, 12] liters. The first-half rate is $(6-12)/2=-3$ L/min and the second is $(0-6)/2=-3$ L/min. The proposed middle point would instead create rates $-3/2$ and $-9/2$ L/min, contradicting constancy.

Evidence and response

Score identification of quantities, domain/range precision, rate calculation, unit interpretation and contextual justification separately. Require open/closed endpoints and discrete values where relevant. Record a swapped-axis error, a missing time denominator, an unsupported extrapolation and a confusion between limiting and attained values as different findings. A correct numerical rate without a clear statement of what changes per unit input is incomplete evidence. Use a new context to check transfer after reteaching.

Closure: Ask learners to state one feature they verified and one check they used. Use the worked key for M14 to compare all alternatives after evidence is collected.

INDEPENDENT PRACTICE

Teaching script

Core: O19 • T4: Explain end behavior, limiting values and the limits of extrapolation without extending a model beyond its stated contextual domain.

Optional bank: M19–M23; O19–O23. Select tasks across more than one meeting if needed.

Suggested discussion/work time: 15–20 minutes. Adjust for access and evidence; this is not a speed criterion.

Display student page O19, including its visual when present. Require evidence tied to the given representation. Construct graphs matching constraints, distinguish two models that fit finite observations, and qualify every end-behavior statement by its actual domain.

Core task

A sensor has output readings 0, 1, 2 cm at times 0, 1, 2 minutes. Two candidate models for $t \geq 0$ are $F(t)=t$ and $G(t)=t$ for $0 \leq t \leq 2$, with $G(t)=2$ for $t > 2$. Verify both match the data, sketch both on $0 \leq t \leq 5$, and compare their end behavior. What can the three readings alone establish?

Teacher solution and discussion

Both models give 0, 1, 2 cm at the three recorded times. F continues along $y=t$ and grows without bound as $t \rightarrow \infty$. G follows that line to $(2, 2)$, then stays at 2 cm, so its limit is 2 cm. In the sketch the burgundy line is F ; green is G , overlapping F through $t=2$. The observations alone do not choose between these end behaviors. A continuation rule or further evidence is needed.

Evidence and response

Score identification of quantities, domain/range precision, rate calculation, unit interpretation and contextual justification separately. Require open/closed endpoints and discrete values where relevant. Record a swapped-axis error, a missing time denominator, an unsupported extrapolation and a confusion between limiting and attained values as different findings. A correct numerical rate without a clear statement of what changes per unit input is incomplete evidence. Use a new context to check transfer after reteaching.

Closure: Ask learners to state one feature they verified and one check they used. Use the worked key for M19 to compare all alternatives after evidence is collected.

SMALL-GROUP RETEACH

Teaching script

Core: O24 • T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

Optional bank: M24–M27; O24–O27. Select tasks across more than one meeting if needed.

Suggested discussion/work time: 10–15 minutes. Adjust for access and evidence; this is not a speed criterion.

Display student page O24, including its visual when present. Address the observed issue with a fresh recorded-data set, a cumulative-output table, an hour-of-day symmetry example or a discrete shared-cost model. Ask for one numerical check that separates the competing interpretations.

Core task

A record contains only these measured time-distance pairs: (0 min, 0 m), (1 min, 2 m), (3 min, 5 m). No rule for unmeasured times is supplied. State the domain and range of the recorded data, calculate its average rate from 0 to 3 minutes, and explain why the record alone does not give the exact distance at 2 minutes.

Teacher solution and discussion

The recorded domain is {0, 1, 3} minutes and recorded range is {0, 2, 5} meters. The endpoint average rate is $(5-0)/(3-0)=5/3$ m/min. The distance at 2 minutes was not recorded. Interpolating a value would require an added model, such as straight-line motion between observations; the three data pairs alone do not determine it.

Evidence and response

Score identification of quantities, domain/range precision, rate calculation, unit interpretation and contextual justification separately. Require open/closed endpoints and discrete values where relevant. Record a swapped-axis error, a missing time denominator, an unsupported extrapolation and a confusion between limiting and attained values as different findings. A correct numerical rate without a clear statement of what changes per unit input is incomplete evidence. Use a new context to check transfer after reteaching.

Closure: Ask learners to state one feature they verified and one check they used. Use the worked key for M24 to compare all alternatives after evidence is collected.

EXIT TICKET

Teaching script

Core: O28 • T2: Calculate and interpret average rates of change with units, and distinguish output size, direction of change, constant rate and net change.

Optional bank: M28–M30; O28–O30. Select tasks across more than one meeting if needed.

Suggested discussion/work time: 5–8 minutes. Adjust for access and evidence; this is not a speed criterion.

Display student page O28, including its visual when present. Collect a full contextual feature summary, two nonconstant-rate comparisons, an interpolation audit and a domain-sensitive limit critique. Preserve the first independent interpretation before discussing corrections.

Core task

The graph models area $A(x)=x(12-x)$ square meters of a rectangle with positive width x and positive length $12-x$ meters. Read its domain, range, symmetry axis and maximum. Compare average area-change rates on $[2, 4]$ and $[4, 6]$, then evaluate the claim that an increasing graph must have a constant positive rate.

Teacher solution and discussion

The positive-dimension domain is $0 < x < 12$ m. The range is $0 < A \leq 36$ m², with maximum 36 m² at $x=6$; the graph is symmetric about $x=6$. Values are $A(2)=20$, $A(4)=32$, $A(6)=36$. The two average rates are $(32-20)/(4-2)=6$ m²/m and $(36-32)/(6-4)=2$ m²/m. Both are positive but unequal. Thus area increases over these intervals while its average gain per added meter decreases; increasing does not imply constant rate.

Evidence and response

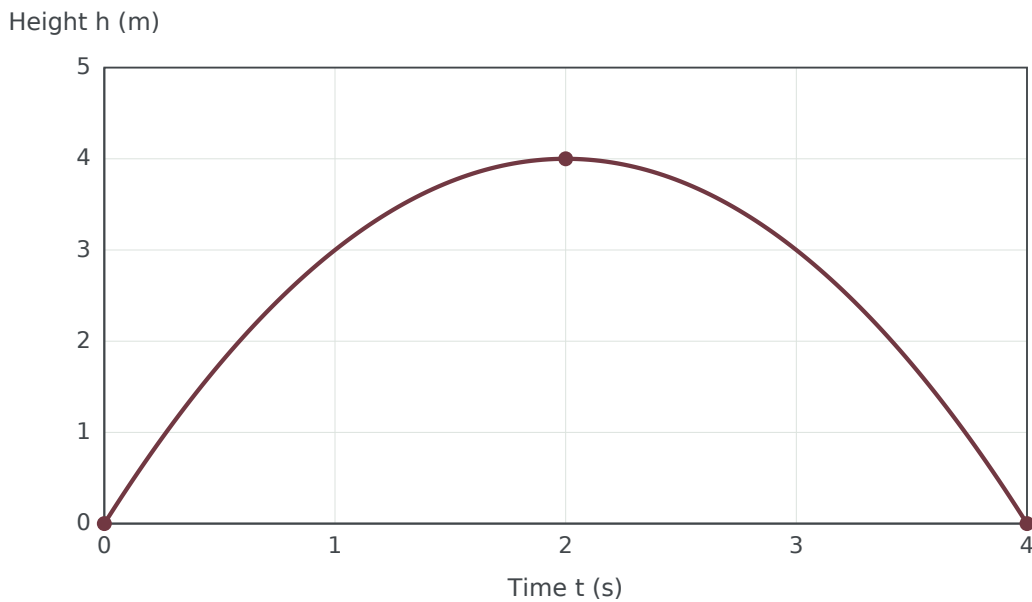
Score identification of quantities, domain/range precision, rate calculation, unit interpretation and contextual justification separately. Require open/closed endpoints and discrete values where relevant. Record a swapped-axis error, a missing time denominator, an unsupported extrapolation and a confusion between limiting and attained values as different findings. A correct numerical rate without a clear statement of what changes per unit input is incomplete evidence. Use a new context to check transfer after reteaching.

Closure: Ask learners to state one feature they verified and one check they used. Use the worked key for M28 to compare all alternatives after evidence is collected.

MULTIPLE-CHOICE BANK

M01 • Select and justify**M01 | Warm-up | T1**

The graph shows a ball's height h in meters during its flight, from launch at $t=0$ seconds until it lands at $t=4$ seconds. What does the highest point mean?



- A. The ball's height is always 4 m.
- B. The ball reaches 2 m at $t=4$ s.
- C. The ball reaches a maximum height of 4 m at $t=2$ s.
- D. The flight lasts 2 s and reaches 4 m.

Reasoning: _____

MULTIPLE-CHOICE BANK

M02 / M03 • Select and justify**M02 | Warm-up | T1**

A booth sells whole tickets for \$8 each and can sell at most three in one order. Here n is ticket count and C is total cost in dollars. What is the domain?

Input x	0	1	2	3
Output y	0	8	16	24

- A. All real numbers from 0 through 24 dollars
- B. $\{0, 1, 2, 3\}$ tickets
- C. All real numbers from 0 through 3 tickets
- D. $\{0, 8, 16, 24\}$ dollars

Reasoning: _____

M03 | Warm-up | T2

A tank's measured volume V is given in liters at times t in hours. What is the average rate of volume change from $t=1$ to $t=6$?

Input x	1	3	6
Output y	12	20	26

- A. $5/14$ hour per liter
- B. 2 L per hour
- C. 14 L per hour
- D. $14/5$ L per hour

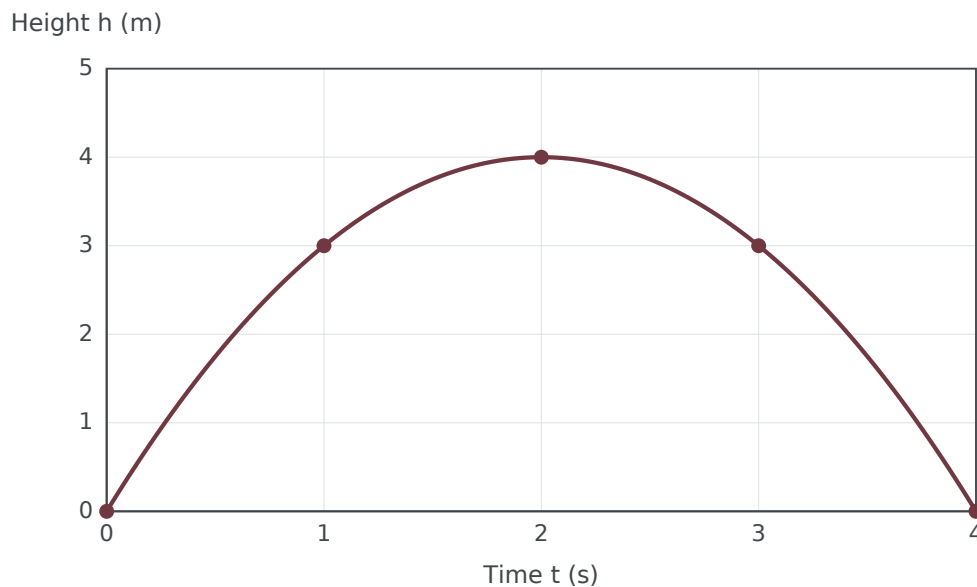
Reasoning: _____

WARM-UP

001 • Show your reasoning

T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

The graph represents a fountain droplet's height h in meters from release until it returns to ground; t is time in seconds. State the contextual domain and range, interpret both endpoints and the highest point, and explain why the average height-change rate from $t=1$ to $t=3$ is zero even though the droplet moves.



Representation / calculation

Explanation / check

WARM-UP

002 • Show your reasoning

T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

A service charges a \$5 setup fee plus \$3 for each whole container cleaned. An order may contain 0 through 4 containers. The table omits $n=3$. Complete it, give the full contextual domain and range as sets, and explain why using every real number between the smallest and largest output would be incorrect.

Containers n	Cost C (\$)
0	5
1	8
2	11
3	?
4	17

Representation / calculation

Explanation / check

WORKED TEACHER KEYS

M01

M01 • T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

Answer: C. The ball reaches a maximum height of 4 m at $t=2$ s.

The vertex is (2, 4). Its horizontal coordinate is time in seconds and its vertical coordinate is height in meters. Thus the maximum height is 4 m, reached 2 s after launch.

Check each alternative

- A. The vertex is one maximum value, not a constant height throughout the flight.
- B. This swaps the coordinates and misreads the landing point (4, 0).
- C. The vertex is (2, 4). Its horizontal coordinate is time in seconds and its vertical coordinate is height in meters. Thus the maximum height is 4 m, reached 2 s after launch.
- D. The full time interval ends at 4 s, not at the time of maximum height.

Evidence to assess

Require a correctly ordered time-height interpretation of the vertex, including both units.

WORKED TEACHER KEYS

M02

M02 • T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

Answer: B. {0, 1, 2, 3} tickets

The input is a whole-number ticket count. The permitted counts are 0, 1, 2, 3, not fractional counts. The costs form the range instead.

Check each alternative

- A. This both reverses input/output roles and inserts unsupported intermediate costs.
- B. The input is a whole-number ticket count. The permitted counts are 0, 1, 2, 3, not fractional counts. The costs form the range instead.
- C. The context allows whole tickets only, so values such as 1.5 are excluded.
- D. These output costs belong to the range, not the input domain.

Evidence to assess

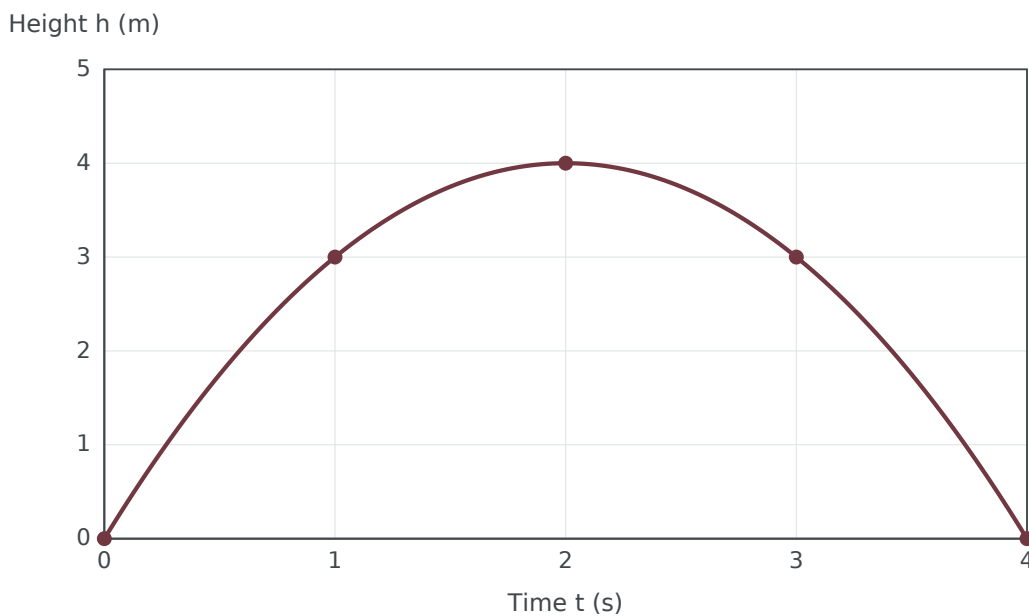
Require the input quantity, the four permissible integer values and a distinction from the cost range.

WORKED TEACHER KEYS

001

001 • T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

The domain is $0 \leq t \leq 4$ seconds and the range is $0 \leq h \leq 4$ meters. The points $(0, 0)$ and $(4, 0)$ represent release at ground level and return to ground after 4 s. The highest point $(2, 4)$ means a maximum height of 4 m at 2 s. The graph gives $h(1)=h(3)=3$, so the average rate is $(3-3)/(3-1)=0$ m/s. Between those times the height first rises to 4 and then falls; equal endpoint heights do not mean the droplet remained still.

**Evidence to assess**

Require correctly assigned domain/range with units, all three contextual point interpretations, the zero difference quotient and evidence of intervening change.

WORKED TEACHER KEYS

002

002 • T1: Interpret contextual domains, ranges, endpoints, zeros and extrema, distinguishing discrete inputs, continuous intervals and attained bounds.

The rule is $C(n)=5+3n$ dollars. The omitted value is $C(3)=14$ dollars. The full domain is $\{0, 1, 2, 3, 4\}$ containers and the range is $\{5, 8, 11, 14, 17\}$ dollars. The whole-container restriction makes the sets discrete. For instance \$10 would require $n=5/3$ containers, which the context excludes; endpoints alone do not justify filling the gaps.

Containers n	Cost C (\$)
0	5
1	8
2	11
3	14
4	17

Evidence to assess

Require the missing cost, all five input and output values, units and a concrete explanation of discreteness.