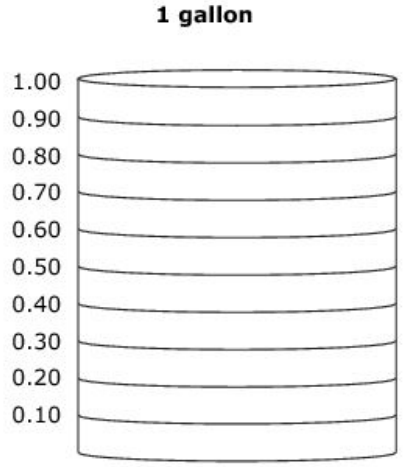
Example Item 2A.1a (Grade 6):
Primary Target 2A (Content Domain RP), Secondary Target 1A (CCSS 6.RP.A), Tertiary Target 2D

Tim made 80 gallons of paint by mixing 48 gallons of green paint with 32 gallons of blue paint.

What part of every gallon is from green paint?

The picture represents 1 gallon of mixed paint.

Click on the picture to show how much of the gallon is from green paint.



Rubric: (1 point) The student clicks on the picture so that 0.6 gallon is shaded.

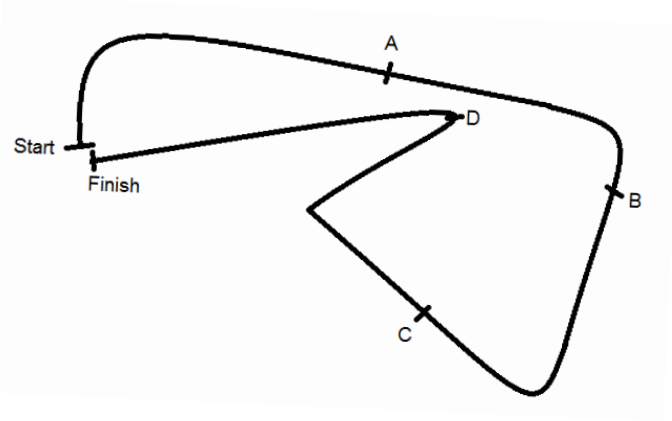
Response Type: Hot Spot

Example Item 2A.1b (Grade 6):
Primary Target 2A (Content Domain RP), Secondary Target 1A (CCSS 6.RP.A), Tertiary Target 2D

It takes Shaun 90 minutes to complete a 15 mile race. The route, with four checkpoints (labeled A, B, C, and D), is shown.

Assume Shaun runs at a constant rate during the race.

Complete the table to show Shaun's time, in minutes, and distance, in miles, at each checkpoint.



Checkpoint	A	B	C	D	Finish
Number of minutes		30		75	90
Number of miles	3		8.5		15

Rubric: (2 points) The student correctly enters all four missing values in the table.
(1 point) The student correctly determines both minutes (e.g., 18, 51) or both miles (e.g., 5, 12.5) or three out of four values correct.

Response Type: Fill-in Table

Commentary: Filling out the different cells in the table requires increasingly sophisticated skills moving from left to right. For students using a unit rate, they must first multiply one-digit whole numbers, then divide a two-digit by a one-digit number resulting in a whole number, then multiply a decimal and a whole number, then divide a two-digit whole number by a one-digit whole number resulting in a decimal. The item could be made easier by changing all entries to require whole-number arithmetic or harder by changing all entries to require decimal number arithmetic. Alternatively, students might notice that the entries in columns A and B are obvious factors of the entries of the columns labeled "Finish" and could easily find their corresponding entries; changing those numbers to less obvious factors would increase the difficulty for students as well.

Example Item 2A.1c (Grade 6):
Primary Target 2A (Content Domain RP), Secondary Target 1A (6.RP.A), Tertiary Standard 2D

Katie and Becca each bought a new book for $50.

- Katie sold her book to the used bookstore for 25% less than the original price.
- Becca sold her book to the used bookstore for 40% less than the original price.

Enter how much more money, in dollars, Katie received for her book than Becca received for her book.

Rubric: (1 point) The student enters the correct difference in the response box (e.g., 7.50 or 7 ½).

Response Type: Equation/Numeric

Example Item 2A.1d (Grade 7):
Primary Target 2A (Content Domain RP), Secondary Target 1A (CCSS 7.RP.A), Tertiary Target 2D

Luke buys a television that is on sale for 25% off the original price. The original price is $120 more than the sale price.

What is the original price of the television?

Rubric: (1 point) The student enters the correct original price in the response box (e.g., 480).

Response Type: Equation/Numeric

Example Item 2A.1e (Grade 7):
Primary Target 2A (Content Domain RP), Secondary Target 1A (CCSS 7.RP.A), Tertiary Target 2D

Elly poured $\frac{1}{10}$ gallon of water into an empty bottle. Now it is $\frac{1}{2}$ full. How many **cups** of water does a full bottle hold?

- There are 16 cups in one gallon.

Enter the total number of **cups** that are in the bottle when it is full.

Rubric: (1 point) The student enters the correct number of cups in the response box (e.g., $3\frac{1}{5}$ or 3.2).

Response Type: Equation/Numeric

Example Item 2A.1.f (Grade 7):
Primary Target 2A (Content Domain EE), Secondary Target 1C (CCSS 7.RP.A), Tertiary Target 2D

Justin's car can travel 77.5 miles using 3.1 gallons of gas.

At this rate, how far, in miles, can Justin travel using 8.2 gallons of gas?

Enter the distance in the response box.

Rubric: (1 point) The student enters the correct distances in the response boxes (e.g., 205).

Response Type: Equation/Numeric

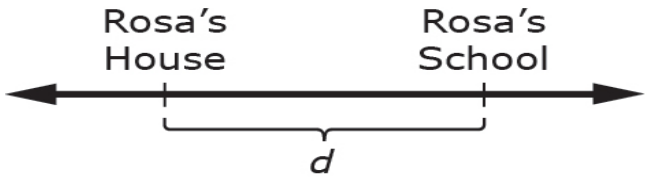
Task Model 2A.2

Expectations:

- Students solve real-world and mathematical problems involving understanding rational numbers and their operations.
- Items in this task model have a fairly straightforward connection between the context and the computation to be performed to solve the problem. They can be single step or multi-step. However, the item should not directly indicate the calculation to be performed.
- Items involving division of fractions can involve (a) division of fractions with like denominators (Example Item a) (b) division of a fraction by a whole number or a whole number by a fraction (Example Item b) (c) division of a fraction by a fraction (harder, Example Item c).
- Items involving operations with rational numbers can involve (a) operations with of integers (easier Grade 7) (b) operations with rational numbers that are not integers (harder Grade 7).

Example Item 2A.2a (Grade 6):
Primary Target 2A (Content Domain NS), Secondary Target 1B (CCSS 6.NS.A), Tertiary Target 2C
(Adapted from Illustrative Mathematics, Running to School, Variation 1)

The distance between Rosa's house and her school is $\frac{3}{4}$ mile. She ran $\frac{1}{2}$ mile.



What fraction of the distance, *d*, between her house and her school, did Rosa run?

Enter your answer in the response box.

Rubric: (1 point). The student enters the correct fraction in the response box (e.g., $\frac{2}{3}$).

Response Type: Equation/Numeric

Example Item 2A.2b (Grade 6):
Primary Target 2A (Content Domain NS), Secondary Target 1B (CCSS 6.NS.A), Tertiary Target 2C
(Adapted from Illustrative Mathematics, Making Hot Cocoa, Variation 1)

A serving of hot chocolate requires $\frac{3}{4}$ cup of milk.

How many servings can Nina make with $7\frac{1}{2}$ cups of milk?

Enter your answer in the response box.

Rubric: (1 point). The student enters the correct number of servings in the response box (e.g., 10).

Response Type: (Equation/Numeric)

Example Item 2A.2c (Grade 6):
Primary Target 2A (Content Domain NS), Secondary Target 1B (CCSS 6.NS.A), Tertiary Target 2C
(Adapted from Illustrative Mathematics, 6.NS How Many Containers in One Cup/Cups in One Container?)

It takes $\frac{1}{2}$ cup of water to fill $\frac{2}{3}$ of a plastic container.

How much water, in cups, will the full container hold?

Enter your answer in the response box.

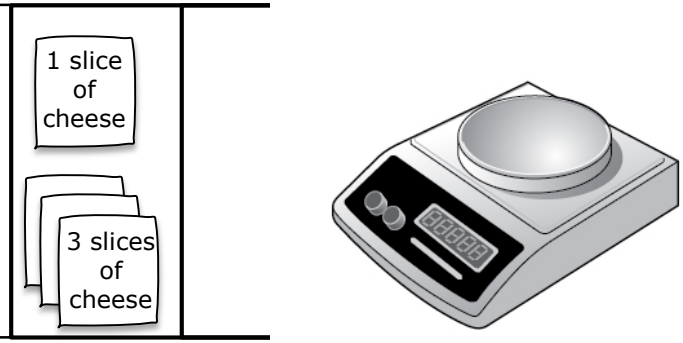
Rubric: (1 point). The student enters the correct number of cups in the response box (e.g., $\frac{3}{4}$).

Response Type: (Equation/Numeric)

Example Item 2A.2d (Grade 6)
Primary Target 2A (Content Domain NS), Secondary Target 1B (CCSS 6.NS.A), Tertiary Target 2C

Ellie ordered $\frac{3}{4}$ of a pound of cheese from the deli.

Drag the slices of cheese onto the scale so that together they weigh at least ¾ of a pound.

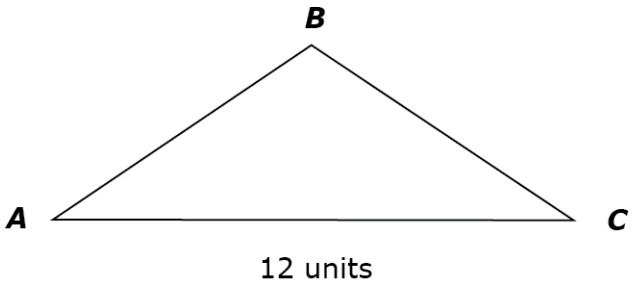


Interaction: The student drags pieces of cheese singly or in groups of three onto the scale. The weight of the cheese, to the nearest hundredth of a pound, is shown on the scale as the slices are added. Each slice is approximately 0.05 pounds, although they are not all equal.

Rubric: (1 point) The student drags the correct number of slices onto the scale (e.g., 8).

Response Type: Drag and drop

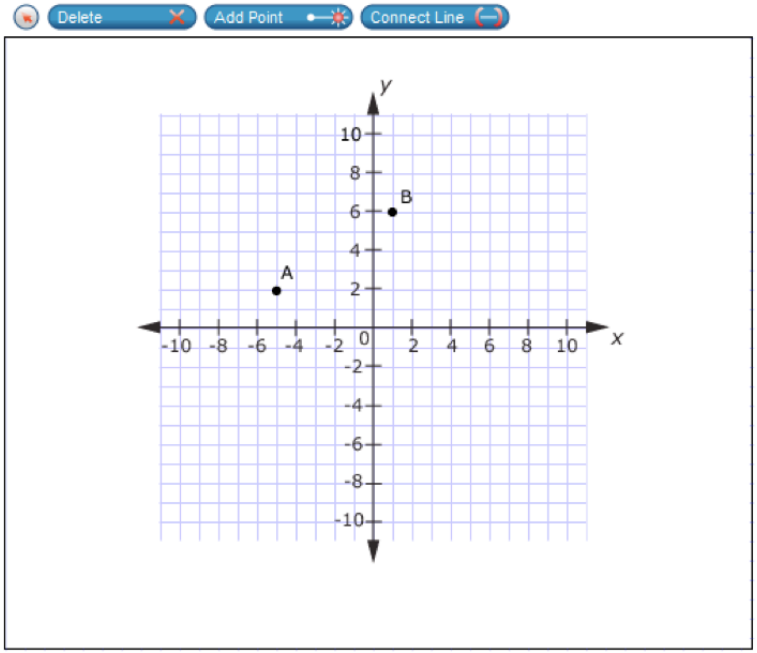
Example Item 2A.2e (Grade 7)
Primary Target 2A (Content Domain NS), Secondary Target 1D (CCSS 6.NS.C)



Complete the sketch of triangle ABC in the coordinate plane.

- Point A is plotted at (-5, 2)
- Point B is plotted at (1, 6)
- Side AC is parallel to the *x*-axis and is 12 units long

Use the Add Point and Connect Line Tool to plot C in the coordinate plane and connect the three points.



Rubric: (1 point). The student plots point C in the coordinate plane and draws the three line segments.
(C is plotted at (7, 2); segments AB, AC, and BC are created)

Response Type: Graphing

Example Item 2A.2f (Grade 7):
Primary Target 2A (Content Domain NS), Secondary Target 1B (CCSS 7.NS.A), Tertiary Target 2C

The weather report predicted that the low temperature would be -8 degrees Fahrenheit. The radio announcer said,

"The low temperature was 5 degrees colder than predicted!"

What was the low temperature, in degrees Fahrenheit?

Enter your answer in the response box.

Rubric: (1 point). The student enters the correct temperature in the response box (e.g., -13).

Response Type: Equation/Numeric

Grades 6-8, Claim 2

Task Model 2A.3

Expectations:

- The student solves a real world and mathematical problems using expressions, equations, and functions (functions limited to Grade 8 problems).
- For problems involving equations in one variable, grade level may be varied by choosing equations of the form $px = q$ or $x+p = q$ (Grade 6) or equations of the form $px + q = r$ or $p(x+q) = r$ (Grade 7). (Note that there is no restriction on equation structure in Grade 8.)
- The equation should not be extractable by key words or other scaffolding.
- Items can simply ask for the equation and not its solution (Example Item 2A.3c), or they can ask for the solution as well.

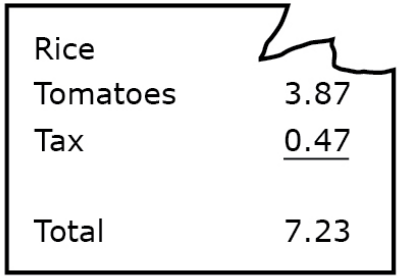
Example Item 2A.3a (Grade 6)

Primary Target 2A (Content Domain EE), Secondary Target 1F (CCSS 6.EE.B), Tertiary Target 2D

Sierra's bought a bag of rice and some tomatoes. The corner of her of her receipt got torn. The torn receipt is shown.

Write an equation that can be solved to determine the cost, x, of the bag of rice.

Enter your equation in the response box.



Rubric: (1 point) The student enters a correct equation in the response box (e.g., $x+3.87+0.47=7.23$).

Response Type: Equation/Numeric

Example Item 2A.3b (Grade 7):
Primary Target 2A (Content Domain EE), Secondary Target 1D (CCSS 7.EE.B), Tertiary Target 2D

The marching band has 85 members. There are 15 more girls than boys in the band.
How many boys are in the marching band?

Enter your answer in the response box.

Rubric: (1 point) The student enters the correct number of boys in the response box (e.g., 35).

Response Type: Equation/Numeric

Item Commentary: Notice that although the equation is simple, the item is a disguised 2-step problem, which prevents extracting the equation through simple keyword analysis. Indeed, keyword analysis might lead to the wrong equation.

Example Item 2A.3c (Grade 7):
Primary Target 2A (Content Domain RP), Secondary Target 1A (CCSS 7.RP.A), Tertiary Target 2D

The school bus driver follows the same route to pick students up in the morning and to drop them off in the afternoon. Because of traffic, the afternoon drive takes 1.5 times as long as the morning drive.

Enter an equation that represents the relationship between the number of minutes x, of the morning drive, to the **total** number of minutes, y, that the bus driver spends picking up and dropping off students each day.

Rubric: (1 point) The student enters a correct equation in the response box (e.g., $y=2.5x$).

Response Type: Equation/Numeric

Item Commentary: Notice that although the equation is simple, finding the constant of proportionality is not as straightforward as it would appear to be, which prevents extracting the equation through simple keyword analysis. Indeed, keyword analysis might lead to the wrong equation ($y=1.5x$).

Example Item 2A.3d (Grade 8):
Primary Target 2A (Content Domain F), Secondary Target 1E (CCSS 8.F.A), Tertiary Target 2D

Helga wants to have a lot of helium-filled balloons at her party.
- The helium tank costs $58 to rent.
- Balloons cost $0.29 each.
- She wants to have 5 helium-filled balloons for each party guest.

Enter an equation that represents the total cost, *C*, in dollars of the helium-filled balloons for *n* party guests.

Rubric: (1 point) The student enters a correct equation in the response box (e.g., $C=58+1.45n$).

Response Type: Equation/Numeric

Task Model 2A.4

Expectations:
- The student solves a problem related to the Pythagorean Theorem or volumes of cylinders, cones, and spheres.
- The task should require more than a routine application of the Pythagorean Theorem or a volume formula.

Example Item 2A.4a (Grade 8):
Primary Target 2A (Content Domain G), Secondary Target 1H (CCSS 8.G.B), Tertiary Target 2D

Two sides of a right triangle have lengths $\sqrt{10}$ centimeters and $\sqrt{6}$ centimeters. There are two possible lengths for the third side.

Enter the **longest** possible side length, in centimeters, for the third side of this triangle.

Rubric: (1 point) The student enters the correct length in the response box (e.g., 4).

Response Type: Equation/Numeric

Example Item 2A.4b (Grade 8):
Primary Target 2A (Content Domain G), Secondary Target 1I (CCSS 8.G.C), Tertiary Target 2D

A sphere and the base of a cone have a radius of 3 inches. The volume of the sphere equals the volume of the cone. What is the height of the cone, in inches?

Enter the height, in inches.

Rubric: (1 point) The student enters the correct radius in the response box (e.g., 12).

Response Type: Equation/Numeric

Example Item 2A.4c (Grade 8):
Primary Target 2B (Content Domain G), Secondary Target 1F (CCSS 8.G.C), Tertiary Target 2D

A right cylindrical tank has a height of 10 feet and a radius of 4 feet. Jane fills this tank with water at a rate of 8 cubic feet per minute. Using this rate, determine the number of minutes it will take Jane to completely fill the tank.

Enter your answer, rounded to the nearest minute, in the response box.

Rubric: (1 point) The student enters the correct number of minutes in the response box (e.g., 63).

Response Type: Equation/Numeric

Target 2B: Select and use appropriate tools strategically.

General Task Model Expectations for Target 2B:

- Mathematical information from the context is presented in a table, graph, or diagram, or is extracted from a verbal description or pictorial representation of the context.
- Tasks aligned to this task model focus on using tools to solve problems or making strategic choices about which tool to use or whether to use a tool to solve a problem.
- Difficulty of the task may be varied by varying (a) the difficulty of extracting information from the context, (b) the number of steps, (c) the complexity of the numbers used, or (d) the complexity of the interpretation required.
- Tasks have DOK Level 2 or 3.

Task Model 2B.1

Expectations:

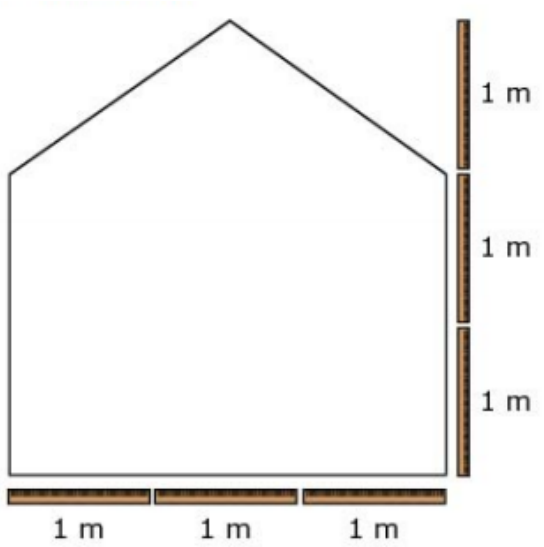
- The student uses a tool to solve a problem.
- The tool should have a mathematical purpose relevant to the solution of the problem. For example, in Example Item 2B.1a, the tool is needed to make measurements, and in Example Item 2B.1b, the tool helps the student think through the conditions.

Example Item 2B.1a (Grade 7):
Primary Target 2B (Content Domain RP), Secondary Target 1A (CCSS 7.RP.A), Tertiary Target 2D

John needs to paint one wall in his school. He knows that one can of paint covers an area of 24 square feet. John uses a meter stick to measure the dimensions of the wall, as shown.

- 1 meter is approximately 39 inches

What is the **fewest** number of cans of paint John can use to paint the wall?



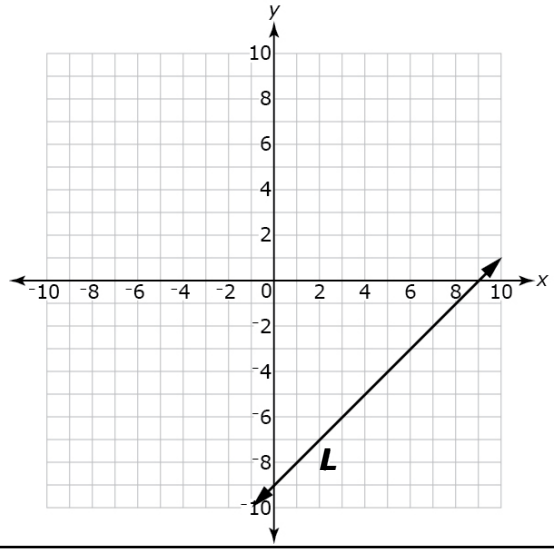
Rubric: (1 point) The student enters the correct number of cans of paint in the response box (e.g., 4).

Response Type: Equation/Numeric

Example Item 2B.1b (Grade 8):
Primary Target 2B (Content Domain EE), Secondary Target 1D (CCSS 8.EE.C)

Line ***L*** is shown on the coordinate plane. Use the Add Arrow tool to draw line ***M*** so that:

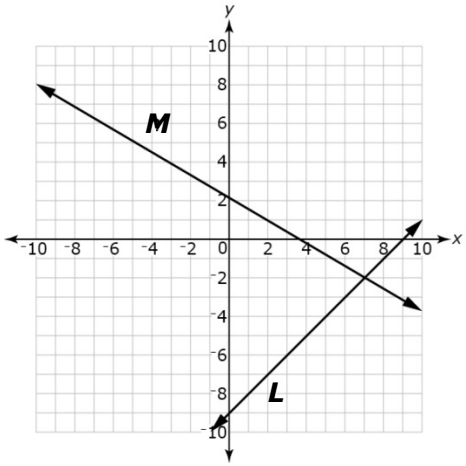
- Lines ***L*** and line ***M*** are graphs of a system of linear equations with a solution of (7, –2).
- The slope of line ***M*** is greater than –1 and less than 0.
- The *y*-intercept of line ***M*** is positive.



Interaction: The double arrow Add Arrow tool is available, as well as the Add Point tool.

Rubric: (1 point) The student draws a line that meets the requirements (e.g., see below).

Response Type: Graphing

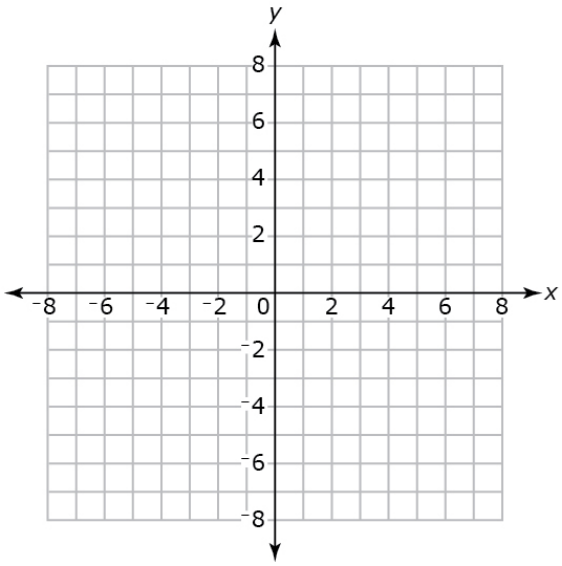


Grades 6-8, Claim 2
Example Item 2B.1c (Grade 8):
Primary Target 2B (Content Domain F), Secondary Target 1E (CCSS 8.F.A)

This table shows some values of a linear function.

x	***y***
–1	–5
1	–1
3	3

Use the Add Arrow tool to draw the graph of a **different** function that has the **same** rate of change as the one shown in the table of values.



Rubric: (1 point) The student draws a line with the correct slope and does not pass through the points shown in the function table (e.g., slope of 2, passes through any *y*-intercept **except** (0, –3))

Response Type: Graphing

Grades 6-8, Claim 2

Task Model 2B.2

Expectations:

- The student makes strategic choices about using tools.
- The student has access to a tool that is more appropriate for some problems than others. Students may choose to use the tool or not.
- Mathematical contexts involving computations that benefit from seeing structure or understanding numbers may be used in addition to real world contexts.
- Computations with numbers may draw on operations learned in earlier grades if the computations are particularly complex and lend themselves to making strategic choices whether or not to use a calculator.
- Dimensions along which to vary the item include (a) varying the context (b) varying the tool to be used (c) varying the complexity of the numbers to be used.

Example Item 2B.2a (Grade 6):
Primary Target 2B (Content Domain NS), Secondary Target 1C (CCSS 6.NS.B)

Perform the following calculations. You may use a calculator, but in some cases mental calculations might be faster and more reliable.

Part A:
$(1 - 1) + (2 - 2) + (3 - 3) + (4 - 4) + (5 - 5) + (6 - 6) + (7 - 7) + (8 - 8) + (9 - 9) + 10 = ?$
Enter your answer in the first response box.

Part B: $987 \times 654 = ?$
Enter your answer in the second response box.

Rubric: (1 point) The student correctly enters the correct values for both parts in the response boxes (e.g., 10; 645,498).

Response Type: Equation/Numeric (2 response boxes)

Commentary: It is more strategic to do the first problem without a calculator. Other examples of calculations that would be better done without a calculator include $(100 + 200 + 300 + 400 + 500) \div (500 + 400 + 300 + 200 + 100)$ and $(941{,}704{,}813 - 237{,}498) \times (1{,}234 - 1{,}000 - 200 - 30 - 4)$.

Grades 6-8, Claim 2

Example Item 2B.2b (Grade 7)

Primary Target 2B (Content Domain NS), Secondary Target 1B (CCSS 7.NS.A)

Determine whether each expression has a value that is positive, negative, or zero.

Select the correct comparison for each expression.

Expression	Positive	Zero	Negative
$\left(1\frac{2}{3}\right)+\left(-\frac{4}{3}\right)$			
$\frac{23}{56}-0.42$			
$(-0.025)\cdot\left(\frac{9}{16}\right)$			
$\left(-\frac{21}{5}\right)\div\left(-\frac{21}{5}\right)$			

Rubric: (1 point) The student selects the correct sign for each expression, as shown below.

Expression	Positive	Zero	Negative
$\left(1\frac{2}{3}\right)+\left(-\frac{4}{3}\right)$	✓		
$\frac{23}{56}-0.42$			✓
$(-0.025)\cdot\left(\frac{9}{16}\right)$			✓
$\left(-\frac{21}{5}\right)\div\left(-\frac{21}{5}\right)$	✓		

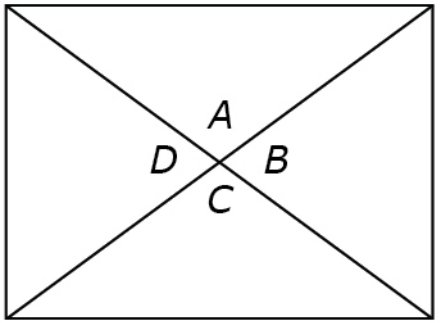
Response Type: Matching Tables

Commentary: It is more strategic to do all but the second problem without a calculator.

Grades 6-8, Claim 2
Example Item 2B.2.c
Primary Target 2B (Content Domain G), Secondary Target 1F (CCSS 7.G.B), Tertiary Target 2D

The figure shows a scale drawing of a window.
Find the measures of angles A, B, C, and D to the nearest degree.
Enter the measures in the table shown.

Angle	Measure, in degrees
A	
B	
C	
D	



Rubric: (1 point) The student enters correct angle measures in the response box within a tolerance of +/-3 degrees (e.g., 72, 108, 72, 108). Note that vertical angles should be equal and supplementary angles should sum to 180 degrees.

Response Type: Fill in Table

Commentary: The student has the choice of using a protractor and a ruler. Students will need to measure at least one angle with the protractor, but do not need the ruler at all. They could just measure one of the angles using the protractor and deduce the rest, which is more strategic, or they could measure all four angles, which is less strategic.

Target 2C: Interpret results in the context of a situation.

General Task Model Expectations for Target 2C

- The student is asked to interpret the solution of a well-posed problem arising in a context from everyday life, society, or the workplace, and then to interpret the solution in terms of the context.
- Possible interpretations include: giving the units of an answer and explaining their meaning, interpreting parts of an expression, and interpreting the solution to an equation. Problems involving interpreting data are more likely to fit into Claim 4C than Claim 2C.
- Because the focus is on interpreting the solution, items in this task model will generally have lower cognitive demand in the problem solving aspects than items in task models for 2A and 2B.
- Mathematical information from the context is presented in a table, graph, or diagram, or is extracted from a verbal description or pictorial representation of the context.
- Solving the problem requires either using units, writing an expression in an equivalent form, setting up and solving an equation or system of equations, or calculating geometric measures.
- Difficulty of the task may be varied by varying (a) the difficulty of extracting information from the context (b) the number of steps (c) the complexity of the numbers used or (d) the complexity of the interpretation required.
- Tasks have DOK Level 1 or 2.

Task Model 2C.1

Expectations:

- The student performs a calculation arising from a context and reports a number other than the direct result of the calculation because the context provides additional constraints on the allowable answers, for example.
  - choosing a value that falls into a range of acceptable values limited by information given in the context,
  - rounding up or down based on the constraints of the context.
- The student may be asked to interpret the meaning of points on the number line or in the coordinate plane in a real-world context.

Example Item 2C.1a (Grade 6):
Primary Target 2C (Content Domain RP), Secondary Target 1A (CCSS 6.RP.A), Tertiary Target 2D

A factory makes 12 bottles every 2 minutes. The factory makes bottles for 8 hours each work day.

Enter a whole number to represent the **fewest** number of work days the factory will need to make 28,000 bottles.

Rubric: (1 point) The student enters the correct least number of days in the response box (e.g., 10).

Response Type: Equation/Numeric

Example Item 2C.1b (Grade 7)
Primary Target 2C (Content Domain NS), Secondary Target 1B (CCSS 7.NS.A)

This table shows the monthly change in Sara's bank account balance for each month listed. For example, the account balance change of -30 means that Sara's balance decreased by $30 from the beginning to the end of the month of February.

Month	Account Balance Change (Dollars)
January	+38
February	–30
March	–19
April	+49

Determine whether each statement about Sara’s bank account balance is true or false, based on the information in the table. Select True or False for each statement.

Statement	True	False
Sara has less money in her account at the end of February than at the end of any other month.		
Sara’s account balance is the same at the end of April as it is at the end of January.		
Sara has more money in her account at the end of April than she had at the **beginning** of January.		

Rubric: (1 point) The student correctly selects true or false for all three statements (e.g., FTT).

Response Type: Matching Tables

Task Model 2C.2

- The student interprets expression, equations, or graphs that represent a real-world context.
- Tasks involving expressions can involve interpreting the expression as representing a meaningful calculation arising from the context, or comparing two expressions, either equivalent or not, in terms of the calculation they represent. They can also involve interpreting constants, terms, or factors in terms of the context.
- Tasks involving solving equations in one variable can involve interpreting the solution in terms of the context.
- Tasks involving functions (Grade 8), either defined by an expression in one variable or an equation in two variables, can involve interpreting a parameter in the expression or equation; they can also involve interpreting graphical or tabular representations of the function, or making a connection between different representations.
- The wording of the problem should not reveal the answer to the interpretation step.
- Dimensions along which to vary the item include (a) varying the context (b) varying the type of expression or the type of equation to be solved (one- or two-step) (c) varying the complexity of the interpretation asked.

Example Item 2C.2a (Grade 7):
Primary Target 2C (Content Domain EE), Secondary Target 1D (CCSS 7.EE.B), Tertiary Target 2D
(Source: Adapted from *Illustrative Mathematics*, Grade 7.EE)

The students in Mr. Sanchez's class are converting distances measured in miles (m) to kilometers (km).

Abby and Renato use the following methods to convert miles to kilometers.

- Abby takes the number of miles, doubles it, and then subtracts 20% of the result.
- Renato first divides the number of miles by 5, then multiplies the result by 8.

Which equation correctly shows why both their methods produce the same result?

A. $2m - 0.20 = \frac{m}{5} \cdot 8$
B. $2m - 0.20(2m) = \frac{m}{5} \cdot 8$
C. $2m - 2.20m = \frac{m}{5} + 8\left(\frac{m}{5}\right)$
D. $0.20(2m) - 2m = \frac{m}{5} + 8\left(\frac{m}{5}\right)$

Rubric: (1 point) The student selects the correct equation (e.g., B).

Response Type: Multiple Choice, single correct response

Grades 6-8, Claim 2

Example Item 2C.2b (Grade 7):

Primary Target 2C (Content Domain EE), Secondary Target 1C (CCSS 7.EE.B), Tertiary Target 2D

A mail-order company sells jars of spices.

- An empty jar has a mass of 200 grams.
- A full jar contains 110 grams of a spice.
- The company sells *n* jars filled with spices.

Select the best interpretation of the expression (200 +110)*n*.

A. The cost to ship 1 full jar
B. The cost to ship *n* full jars
C. The mass of 1 full jar
D. The mass of *n* full jars

Rubric: (1 point) The student selects the correct interpretation (e.g., D).

Response Type: Multiple Choice, single correct response

Grades 6-8, Claim 2
Example Item 2C.2c (Grade 8):
Primary Target 2C (Content Domain EE), Secondary Target 1C (CCSS 8.EE.B), Tertiary Target 2D

A comet is orbiting the sun.

The equation $d = 130{,}000t$ represents the relationship between *d,* the distance traveled by the comet in kilometers and *t,* the time, in hours, since astronomers first spotted the comet

What does the 130,000 in the equation tell us about the comet?

A. The comet will travel 130,000 kilometers in a year.
B. The comet is traveling at 130,000 kilometers per hour.
C. The comet has traveled 130,000 kilometers since astronomers spotted it.
D. The comet has been traveling for 130,000 hours since astronomers spotted it.

Rubric: (1 point) The student selects the correct interpretation (e.g., B).

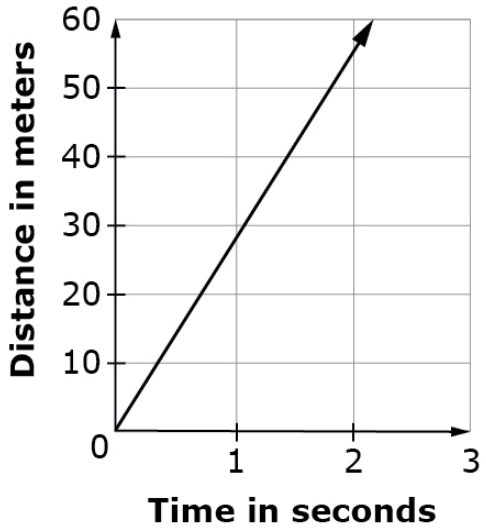
Response Type: Multiple Choice, single correct response

Commentary: In Grade 8, students should also be interpreting the *x*- and *y*-intercepts as well as the slope of linear relationships.

Example Item 2C.2d (Grade 7):
Primary Target 2A (Content Domain RP), Secondary Target 1A (CCSS 7.RP.A), Tertiary Target 2C, Quaternary Target 2D

A car is traveling on the highway. The distance, in meters, it has traveled over a two-second interval is shown in the graph. A crow can fly up to 32 meters per second. Would it be possible for a crow to pass the car?

A. Yes, it is possible for a crow to pass the car.
B. No, it is not possible for a crow to pass the car.
C. The speed of the car and the maximum speed of the crow are too close to tell.
D. There is not enough information to answer the question.



Rubric: (1 point) The student selects the correct answer choice (e.g., A).

Response Type: Multiple choice, single correct response

Target 2D: Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas).

Target 2D identifies a key step in the modeling cycle, and is thus frequently present in problems with real-world contexts. Note that Target 2D is never the primary target for an item, but is frequently a Tertiary or Quaternary Target for an item with primary alignment to 2A, 2B, or 2C; see, for example, items in Task Models 2A.1, 2A.3, and 2C.2 and Example Items 2B.1a, 2B.2c, and 2C.1a.

General Task Model Expectations for Target 2D

- Students are presented with a mathematical problem in a real-world context where the quantities of interest are not named explicitly, are named but represented in different ways, or the relationship between the quantities is not immediately clear.
- The student is asked to solve a problem that may require the integration of concepts and skills from multiple domains.