**TEST ASSESSING
SECONDARY COMPLETION™**

TASC Math Sample Test Items

McGraw Hill Education | CTB

This selected-response item will provide evidence regarding the examinee's ability to recognize and use geometric formulas to compute quantities of interest (G-GMD.3), a skill that has a wide array of practical and business applications outside of a school setting. The examinee is provided with a scientific calculator within the testing environment as well as a formula sheet.

This item has been designed so that an examinee who confuses radius and diameter cannot select that as a response. This hopefully prompts the examinee with the skill to recognize the error and obtain the correct response, despite the initial careless error. The same skill could be assessed with a gridded-response item, in which the careless error would result in an incorrect response. Questions of different types therefore provide different opportunities for examinees to provide evidence of their proficiency at different levels.

Answer Key: C
DOK: 2
Explanation: The correct response demonstrates evidence of an examinee's ability to calculate the volume of a sphere with radius 3 inches.

Test Assessing Secondary Completion™ – Sample Items, Math

Item 1

When a spherical balloon is filled with air, it has a diameter of 6 inches.
Which of the following gives the best estimate for the volume of air in the balloon, in cubic inches?

A 63.6

B 108.0

C 113.1

D 150.8

Math

Test Assessing Secondary Completion™ – Sample Items, Math

Item 2

Two rectangles are similar and the dimensions shown are in centimeters.

What is the measure of x, in centimeters?

A 4.0

B 5.6

C 8.4

D 11.0

Math

This selected-response item requires the examinee to apply proportional reasoning skills in a geometric context (G-SRT.5). Writing proportions to model situations is one of the most fundamental concepts in mathematical modeling (MP.4).
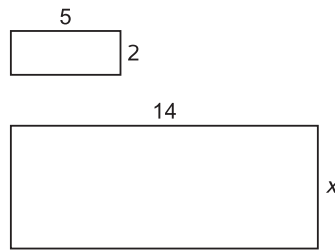
Answer Key: B

DOK: 2

Explanation for Correct Response:

The correct response demonstrates evidence that the examinee can apply proportional reasoning to $\frac{14}{5} = \frac{x}{2}$, obtaining the solution $x = \frac{28}{5} = 5.6$.

Test Assessing Secondary Completion™ — Sample Items, Math

Item 3

Sharon made a scale drawing of a triangular park. The coordinates for the vertices of the park are:

$(-10, 5)$

$(15, 5)$

$(10, 12)$

Her scale is 1 unit = 1 meter.

What is the area of the triangular park in square meters?

Math

A key concept in coordinate geometry is analyzing graphs to determine distances and areas that depend on the scale and units of measure. This gridded-response item requires the examinee to use coordinates to compute an area (G-GPE.7). Since a coordinate grid graphic is not given, the examinee must visualize the situation in order to calculate the area. The test will also include lower-rigor items that do include the graphic.

Answer Key: 87.5
DOK: 2
Explanation for Correct Response:
The correct response demonstrates evidence that the examinee can calculate the area of a triangle, given coordinates.

Test Assessing Secondary Completion™ – Sample Items, Math

This selected-response item requires the examinee to apply algebraic rules to solve a linear equation (A-REI.3). The order of operations plays an important role in this item as does recognition and manipulation of like terms. Having a non-integer solution reduces the opportunity to test answer choices in the equation, though this skill as well is often assessed using gridded-response items. The item not only allows an inference to be made about the examinee's mastery of the content standard but also provides evidence regarding the examinee's mastery of looking for and making use of structure (MP.7).

Answer Key: C
DOK: 2
Explanation for Correct Response:
demonstrates evidence that the examinee can apply algebraic rules, including distributive property, to solve for x.

Item 4

What is the solution to the equation $2(x - 10) + 4 = -6x + 2$?

A $-\frac{9}{2}$

B 1

C $\frac{9}{4}$

D $\frac{5}{2}$

Math

Test Assessing Secondary Completion™ — Sample Items, Math

A key concept in functions is recognizing features of the graphs of the functions (F-IF.4). This selected-response item provides an opportunity for the examinee to demonstrate an understanding of how quantities change with respect to one another given the model graph.
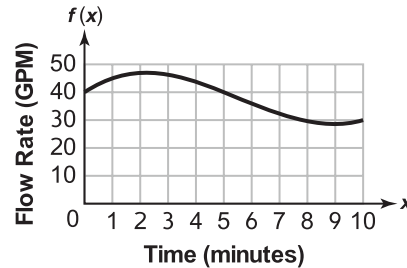
Answer Key: A

DOK: 1

Explanation for Correct Response:
The correct response demonstrates evidence that the examinee can recognize that A is the only region where the flow rate is increasing.

Item 5

Water pours into a tank over a 10-minute period. The function $f(x)$ graphed below models the flow rate, in gallons per minute (GPM).

Over which of the following intervals does the flow rate increase by the greatest amount?

A $x = 0$ to $x = 1$

B $x = 2$ to $x = 3$

C $x = 4$ to $x = 5$

D $x = 8$ to $x = 9$

Math

Test Assessing Secondary Completion™ – Sample Items, Math

Item 6

The table below gives selected values for the linear function, $f(x)$.

x	$f(x)$
5	12
10	19
15	26
20	33

Which of the following functions has the same slope as $f(x)$?

A $g(x) = x + 7$

B $h(x) = 2x + 2$

C $q(x) = \frac{4}{5}x + 8$

D $p(x) = \frac{7}{5}x + 5$

Linear functions are among the most basic functions in algebra. Students become familiar with the key concepts of linear functions and learn how to use these functions to model real-life situations in basic courses (MP.4). This selected-response item requires the examinee to compare the slopes of two linear functions that are represented in a different way (F-IF.9). Representing functions algebraically, numerically, and graphically is a standard teaching technique in the mathematics curriculum.

Answer Key: D
DOK: 2
Explanation for Correct Response:
The correct response demonstrates evidence that the examinee can determine the slope of $\frac{7}{5}$, then compare to the equations.

Math

Test Assessing Secondary Completion™ – Sample Items, Math

Item 7

Tom has two cubes with the numbers 1 through 6 on the sides. If he rolls the cubes at the same time and finds the sum, the sample space of the possible outcomes is the set { 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}. Tom rolls the cubes. One of the cubes shows a number less than or equal to 3. The other cube shows the number 4. Which subset of the sample space describes the set of possible outcomes for Tom?

A {5, 6}

B {4, 5, 6}

C {5, 6, 7}

D {4, 5, 6, 7}

Before students can answer a question about the likelihood of an event occurring, they must consider the sample space (the set of possible outcomes) as well as the subset that describes the event of interest (S-CP.1). To avoid misinterpretation, the set of possible outcomes is explicitly stated in this selected-response item, allowing the examinee to focus on selecting the proper subset of the sample space that meets the criteria using quantitative reasoning skills (MP.2).

Answer Key: C
DOK: 2
Explanation for Correct Response:
The correct response demonstrates evidence that the examinee can determine the subset representing the possible outcomes.

Math

Test Assessing Secondary Completion™ – Sample Items, Math

Item 8

The price of a certain sofa, S, is $900 more than the price of a chair, C. The total price for the sofa and chair is $1200. Which system of equations can be used to find the price of each piece of furniture?

A $\begin{cases} C = S - 900 \\ S + C = 1200 \end{cases}$

B $\begin{cases} C = S + 900 \\ S - C = 1200 \end{cases}$

C $\begin{cases} C = S + 900 \\ S + C = 1200 \end{cases}$

D $\begin{cases} C = S + 1200 \\ S - C = 900 \end{cases}$

This selected-response item will provide evidence regarding the examinee's ability to analyze and represent constraints by using a system of equations (A-CED.3). The item requires the examinee to identify the system of equations that models the contextual situation by interpreting key words and phrases (MP.4).

Answer Key: A
DOK: 2
Explanation for Correct Response:
The correct response demonstrates evidence that the examinee can translate verbal description of constraints into correct system of equations.

Math

One of the most fundamental skills from the Common Core Standards for Mathematics in high school is the ability to proficiently compute with algebraic expressions, specifically adding, subtracting, and multiplying polynomials (A-APR.1). This provides the foundation for using algebraic expressions, equations, inequalities, and functions as a means for model phenomena in the real world (MP.4).

Answer Key: B

DOK: 2

Explanation for Correct Response:
The correct response demonstrates evidence that the examinee can recognize that B is the only answer that demonstrates correct addition of terms.

Item 9

Consider this polynomial expression.

$(x^2 - x + 1) + (2x^2 + x - 9)$

What is the sum of the polynomials?

A $x^2 - 8$

B $3x^2 - 8$

C $3x^2 - 2x - 8$

D $3x^2 + 2x - 8$

Math

Items 10

Consider this function.

$$f(x) = -2x + 7$$

What is $f(-3)$?

Proficiency with the concept of functions involves both familiarity with functional notation and the ability to evaluate a given function for a specific numerical value (F-IF.2). This item requires the examinee to apply these skills, evaluating a basic linear equation for a given input value. Obtaining the proper solution also requires demonstrating the conceptual understanding of how to multiply negative numbers together, a skill which the Common Core introduces in grade 7.

Answer Key: 13
DOK: 1
Explanation for Correct Response:
The correct response demonstrates evidence that the examinee can solve a linear function for a given value, as in f(-3)= -2 × -3 + 7 = 6 + 7 = 13.

Math

This selected-response requires the examinee to isolate a particular quantity of interest (A-REI.3). The item involves many of the same skills as those in the previous item but adds an important concept, attending to quantities within expressions (MP.2). Many recognize the fact that some type of inverse relation exists between the time it takes to complete the job and the work rates but fail to consider the sum of the rates as one unified structure (MP.7).

Answer Key: B

DOK: 2

Explanation for Correct Response:

The correct response demonstrates evidence that the examinee can translate an algebraic equation to isolate the quantity of interest, as in:

$$T = \frac{1}{r_1 + r_2}$$

$$r_1 + r_2 = \frac{1}{T}$$

$$r_1 = \frac{1}{T} - r_2$$

$$r_1 = \frac{1 - Tr_2}{T}$$

Item 11

The time, T, it takes for 2 people working together to complete a job is given by $T = \frac{1}{r_1 + r_2}$.

In the equation
- r_1 is the work rate of the first person
- r_2 is the work rate of the second person

Which formula could be used to find r_1 if you knew the values for T and r_2?

A $r_1 = \dfrac{T - r_2}{r_2}$

B $r_1 = \dfrac{1 - Tr_2}{T}$

C $r_1 = \dfrac{T}{r_2} - r_2$

D $r_1 = \dfrac{Tr_2}{T + r_2}$

Math