TASC PQR Mathematics Test Practice Items

MATHEMATICS

TASC Mathematics Test Practice Items

Use these items to practice for the TASC Mathematics subtest. Before you begin, review the information below titled Using Gridded-Response Item Blocks. Once you reach the end of the test, check your responses against the answer key provided. Take the time to read the information preceding the answers to understand what you'll need to know and be able to do to prepare yourself to pass the TASC test. In the following multiple-choice questions, circle the correct answer and then check your answers using the answer key provided.

Good luck preparing for the TASC test!

Using Gridded-Response Item Blocks

The Mathematics section of the TASC test contains both multiple-choice items and gridded-response items. Gridded-response items ask for a numerical answer that may be an integer, a decimal, or a fractional value. The grid consists of bubbles containing the integers 0 through 9, the fraction bar (/), and a decimal point (.). Enter a numerical value or a symbol into the grid, and then shade the appropriate bubble beneath each number or symbol.

Numbers may be entered from either the right or the left. The scoring software will treat them the same either way. For example, if you had an item with an answer of 43.8, either of the following responses would be scored as correct.

Using Gridded-Response Item Blocks (cont.)

Fractions and decimal values may also be entered. If you had an item with the answer $\frac{3}{6}$, it could be entered as $\frac{3}{6}$ or simplified into either $\frac{1}{2}$ or 0.5, and all of these responses would be scored as correct by the system.
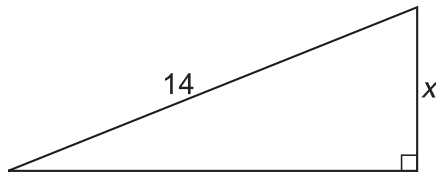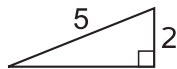
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1.   When a spherical balloon is filled with air, it has a radius of 3 inches. Which of these gives the **best** estimate for the volume of air in the balloon, in cubic inches?

A.   63.6

B.   108.0

C.   113.1

D.   150.8

2.   Two triangles are similar, and the dimensions shown are in centimeters.
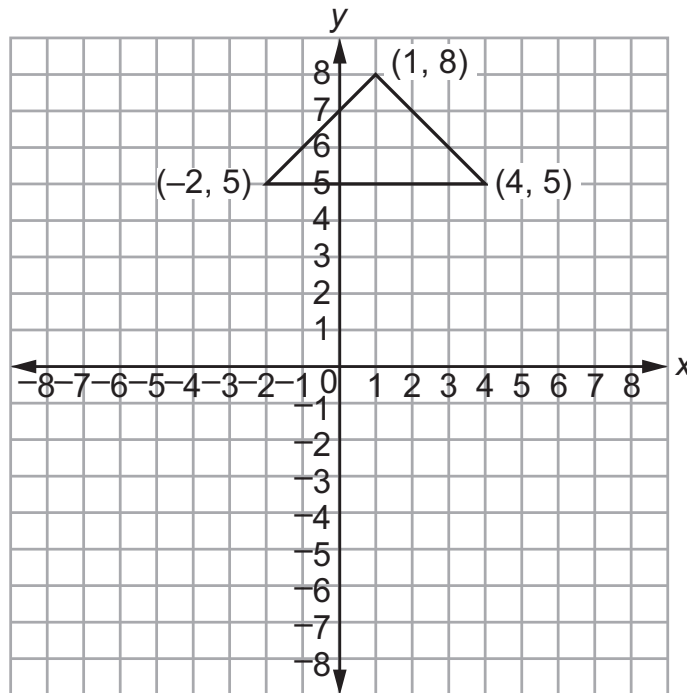

What is the measure of x, in centimeters?

A.   4.0

B.   5.6

C.   8.4

D.   11.0

GO ▶

3.   Sharon made a scale drawing of a triangular park.

Her scale is 1 unit = 1 meter.

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

TASC Mathematics Test Practice Items

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

A. $-\dfrac{9}{2}$

B. 1

C. $\dfrac{9}{4}$

D. $\dfrac{5}{2}$

5. Water pours into a tank over a 10-minute period. The graphed function $f(x)$ models the flow rate, in gallons per minute (GPM).
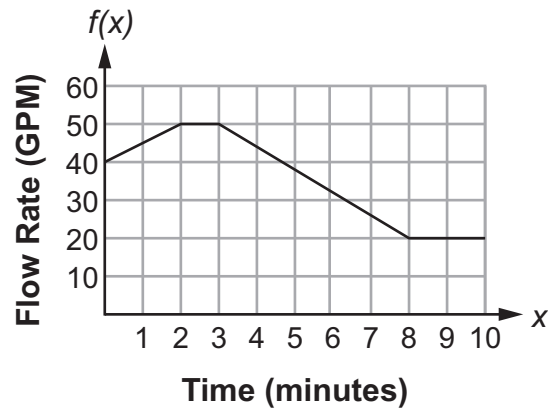
Over which of these intervals does the flow rate increase by the greatest amount?

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

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

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

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

GO ▶

TASC Mathematics Test Practice Items

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

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

Which of these 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. $p(x) = \frac{7}{5}x + 5$

GO ▶

7. Tom has two cubes with one of each number, 1–6, on each of the six faces. He rolls the cubes at the same time and finds the sum of the numbers that show on the top. The sample space of all the possible outcomes is {2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}. Which subset describes the possible outcomes for a roll in which one of the cubes shows a number less than or equal to 3 and the other cube shows the number 4?

    A.   {5, 6}

    B.   {4, 5, 6}

    C.   {5, 6, 7}

    D.   {4, 5, 6, 7}

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

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

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

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

GO ▶

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

10. Consider this function.

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

    What is $f(-3)$?

11. The surface area, *SA*, of a square prism is given by $SA = 2s^2 + 4sh$.

In the equation,

- *s* is the length of the side of the square base and
- *h* is the height.

Which formula could be used to find *h* if you know the values of *SA* and *s*?

A. $h = \dfrac{SA + 2s^2}{4}$

B. $h = \dfrac{SA - 2s^2}{4s}$

C. $h = SA - 2s^2 - 4s$

D. $h = \dfrac{SA}{4s} - 2s^2$

GO ▶

12. While visiting Brazil for 6 days, Shan has a budget to spend an average of 16 U.S. dollars per day on food. The conversion rate is 1 U.S. dollar ($) = 3.16 Brazilian *real* (R$). The first day of vacation, he spends R$63.20 on food.

    What is the average number of U.S. dollars ($) per day Shan can spend on food for the remaining 5 days of his vacation?

13. Select the **three** expressions that each represent a rational number.

    A. $\dfrac{5}{2} \bullet \dfrac{3}{11}$

    B. $\dfrac{1}{\sqrt{4}}$

    C. $2\sqrt{2}\ \sqrt{9}$

    D. $4\sqrt{2 \bullet 9}$

    E. $\sqrt{4}\ \sqrt{16}$

    F. $5^2 \sqrt{3}$

STOP ⬛

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TASC Mathematics Test Practice Items
Answer Key

> **Answer Key**
>
> After completing the practice items, you can check your answers with the following answer key. For your added benefit, answers come with explanations to help you understand why they're right. If you do well on the practice test, then you may be prepared to take the official TASC Readiness Test. If you struggle on the practice test, then you may still have more work to do to get prepared.

1. This multiple-choice item provides evidence regarding your ability to recognize and use geometric formulas to compute quantities, a skill that has a wide array of practical and business applications outside of a school setting. Did you know that you can use an approved scientific calculator, as well as a formula sheet, within the testing environment?

    Answer: C
    Explanation for Correct Response:
    The correct response provides evidence of your ability to calculate the volume of a sphere with a given radius.

2. Deriving the correct response requires you to apply proportional reasoning skills in a geometric context. Writing proportions to model situations is one of the most fundamental concepts in mathematical modeling.

    Answer: B
    Explanation for Correct Response:

    The correct response provides evidence that you can apply proportional reasoning to

    $\frac{14}{5} = \frac{x}{2}$, obtaining the solution $x = \frac{28}{5} = 5.6$.

3. 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 you to use coordinates to compute an area. In this instance, a coordinate-grid graphic is given. In other instances, test items may not include the graphic.

    Answer: 9
    Explanation for Correct Response:
    The correct response provides evidence that you can calculate the area of a triangle, given coordinates and a coordinate grid graphic.

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TASC Mathematics Test Practice Items
Answer Key

4. This multiple-choice item requires you to apply algebraic rules to solve a linear equation. The order of operations plays an important role in this item, as does recognition and manipulation of like terms. The item not only allows an inference to be made about your mastery of the content standard but also provides evidence regarding your mastery of looking for and making use of structure.

   Answer: C
   Explanation for Correct Response:
   The correct reponse provides evidence that you can apply algebraic rules, including the distributive property, to solve for *x*.

5. A key concept in functions is recognizing features of the graphs of the functions. This multiple-choice item provides an opportunity for you to demonstrate an understanding of how quantities change with respect to one another given the model graph.

   Answer: A
   Explanation for Correct Response:
   The correct response provides evidence that you can recognize that A is the only interval where the flow rate is increasing.

6. Linear functions are among the most basic functions in algebra. You will become familiar with the key concepts of linear functions and learn how to use these functions to model real-life situations in basic courses. This multiple-choice item requires you to compare the slopes of two linear functions that are represented in a different way.

   Answer: D
   Explanation for Correct Response:
   The correct response provides evidence that you can determine the slope of $\frac{7}{5}$ from the table and then compare it with the slopes of the equations.

7. Before you can answer a question about the likelihood of an event occurring, you must consider the sample space (the set of possible outcomes) as well as the subset that describes the event. To avoid misinterpretation, the set of possible outcomes is explicitly stated in this multiple-choice item, which allows you to focus on selecting the proper subset of the sample space that meets the criteria, using quantitative reasoning skills.

   Answer: C
   Explanation for Correct Response:
   The correct response provides evidence that you can determine the subset representing the possible outcomes.

8. This multiple-choice item provides evidence regarding your ability to analyze and represent constraints by using a system of equations. The item requires that you identify the system of equations that models the contextual situation by interpreting key words and phrases.

    Answer: A
    Explanation for Correct Response:
    The correct response provides evidence that you can translate a verbal description of constraints into the correct system of equations.

9. A fundamental skill is the ability to proficiently compute with algebraic expressions—specifically, adding, subtracting, and multiplying polynomials. This provides the foundation for using algebraic expressions, equations, inequalities, and functions as a means to model phenomena in the real world.

    Answer: B
    Explanation for Correct Response:
    The correct response provides evidence that you can recognize correct addition of terms.

10. 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. This item requires you to apply these skills by 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.

    Answer: 13
    Explanation for Correct Response:
    The correct response provides evidence that you can evaluate a linear function for a given input, as in $f(-3) = -2 \times -3 + 7 = 6 + 7 = 13$.

11. This multiple-choice item requires you to isolate a particular quantity of interest. The item involves many of the same skills with algebraic properties as the previous item. Isolating a quantity of interest is an important applied skill in mathematics and the sciences.

    Answer: B
    Explanation for Correct Response:
    The correct response provides evidence that you can manipulate an algebraic equation to isolate the quantity of interest, as in

    $$SA = 2s^2 + 4sh$$
    $$SA - 2s^2 = 4sh$$

    $$\frac{SA - 2s^2}{4s} = h$$

12. This gridded-response item requires you to solve a multistep real-world problem by reasoning quantitatively. A unit conversion, which is a very common application of rates of change, is required. The item further requires you to apply your knowledge of how to find the mean in a given context.

Answer: 15.2
Explanation for Correct Response:

Convert R\$ to \$: $\frac{63.20}{3.16} = 20$

Total \$ for budget: $(16)(6) = 96$

$96 - 20 = 76$

$\frac{76}{5} = 15.2$

13. A foundational skill for working with algebraic expressions is understanding rational and irrational numbers. This multi-select item provides the opportunity for you to demonstrate an understanding of how numerical expressions can be rewritten to determine whether they represent rational or irrational numbers.

Answer: A, B, E
Explanation for Correct Response:

A. $\frac{5}{2} \cdot \frac{3}{11}$ This expression is equivalent to $\frac{15}{22}$, which is rational.

B. $\frac{1}{\sqrt{4}}$ This expression is equivalent to $\frac{1}{2}$, which is rational.

E. $\sqrt{4}\ \sqrt{16}$ This expression is equivalent to $(2)(4)$, which is rational.