

Minnesota

**Minnesota Test of Academic Skills (MTAS)
Mathematics Released Questions
Grade 11**



NOTICE: RELEASED QUESTIONS ARE
NOT SECURE TEST MATERIALS.
RELEASED QUESTIONS MAY BE
COPIED OR DUPLICATED.

Minnesota Test of Academic Skills

Grade 11 Mathematics

Sample Task 1

Test Administrator Instructions	Score	Student Responses
<p><i>Administration notes:</i></p> <ul style="list-style-type: none"> ▪ You may use objects when presenting questions and answer options. However, some tasks limit how objects can be used; any limitations will be specified on the task. ▪ Repeat the question exactly as it appears at score 3 as many times as needed until the student responds or until it is clear that the student will not respond. 		
<p><u>Present:</u> M11_Sample 1.1</p> <p>Say: Here is an equation: Two x minus one equals seven ($2x - 1 = 7$). What does x equal?</p> <p><u>Present</u> the answer options in order. <i>Point to each option as you say it.</i></p> <p>A. 3 B. 4 C. 5</p>	3	4
<p><i>Additional administration notes:</i></p> <ul style="list-style-type: none"> ▪ If the student responds incorrectly or not at all, present the task with support as scripted. ▪ Once additional support is provided, the task may not be re-administered for a score of 3. 		
<p><u>Present:</u> M11_Sample 1.2</p> <p>Say: When there is an x in an equation, the x stands for a number. Here is an equation. Point to the equation as you read it. Two times x minus one equals seven ($2x - 1 = 7$). Think about what x equals. Does x equal 3? Does x equal 4? Does x equal 5? Allow the student to use substitution to solve for x. What does x equal?</p> <p><u>Re-present</u> the answer options in order. <i>Point to each option as you say it.</i></p> <p>A. 3 B. 4 C. 5</p>	2	4
	1	3 or 5
	0	Unrelated or none

Grade 11 Math 9.2.2.1: Represent and solve problems in various contexts using linear functions.

$$2x - 1 = 7$$

What does x equal?

$$2 \cdot x - 1 = 7$$

$$2 \cdot 3 - 1 = 7$$

$$2 \cdot 4 - 1 = 7$$

$$2 \cdot 5 - 1 = 7$$

What does x equal?

M11_Sample 1
A

3

M11_Sample 1
B

4

M11_Sample 1
C

5

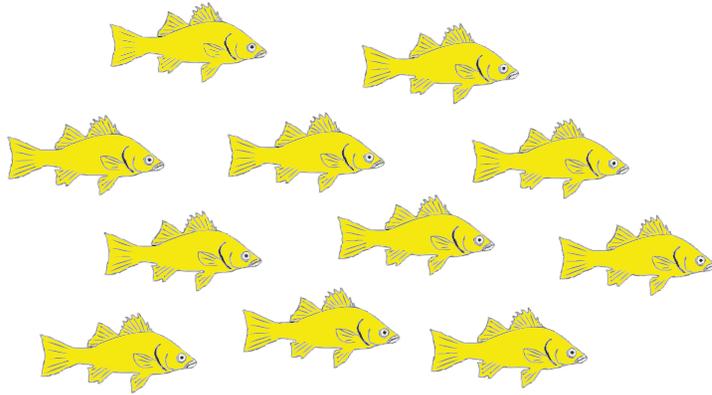
Minnesota Test of Academic Skills

Grade 11 Mathematics

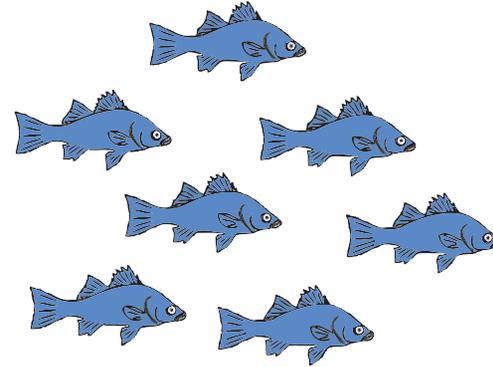
Sample Task 2

Test Administrator Instructions	Score	Student Responses
<p><i>Administration notes:</i></p> <ul style="list-style-type: none"> ▪ You may use objects when presenting questions and answer options. However, some tasks limit how objects can be used; any limitations will be specified on the task. ▪ Repeat the question exactly as it appears at score 3 as many times as needed until the student responds or until it is clear that the student will not respond. 		
<p><u>Present:</u> M11_Sample 2.1</p> <p>Say: An aquarium has 11 yellow fish and 7 blue fish. What is the probability of randomly picking a blue fish?</p> <p><u>Present</u> the answer options in order. <i>Point to each option as you say it.</i></p> <p>A. Eleven out of eighteen ($\frac{11}{18}$)</p> <p>B. Seven out of eighteen ($\frac{7}{18}$)</p> <p>C. Seven out of eleven ($\frac{7}{11}$)</p>	3	$\frac{7}{18}$ <i>If you believe the student's correct response was unintentional, reorder the answer options to B, C, A (instead of A, B, C). Repeat the question. If the student chooses the correct answer again, the task should be scored a 3. If the student chooses an incorrect answer, continue below.</i>
<p><i>Additional administration notes:</i></p> <ul style="list-style-type: none"> ▪ If the student responds incorrectly or not at all, present the task with support as scripted. ▪ Once additional support is provided, the task may not be re-administered for a score of 3. 		
<p><u>Re-present:</u> M11_Sample 2.1</p> <p>Say: To find the probability, compare the number of blue fish...point to the blue fish...to the total number of fish. Trace a circle around both groups of fish. What is the probability of randomly picking a blue fish?</p> <p><u>Re-present</u> the answer options in order. <i>Point to each option as you say it.</i></p> <p>A. Eleven out of eighteen ($\frac{11}{18}$)</p> <p>B. Seven out of eighteen ($\frac{7}{18}$)</p> <p>C. Seven out of eleven ($\frac{7}{11}$)</p>	2	$\frac{7}{18}$ <i>If you believe the student's correct response was unintentional, reorder the answer options to B, C, A (instead of A, B, C). Repeat the question. If the student chooses the correct answer again, the task should be scored a 2. If the student chooses an incorrect answer, the task should be scored a 1.</i>
	1	$\frac{11}{18}$ or $\frac{7}{11}$
	0	Unrelated or none

Grade 11 Math 9.4.3.8: Apply probability concepts to real-world situations to make informed decisions.



Yellow fish



Blue fish

An aquarium has 11 yellow fish and 7 blue fish.
What is the probability of randomly picking a blue fish?

M11_Sample 2

A

$$\frac{11}{18}$$

M11_Sample 2

B

$$\frac{7}{18}$$

M11_Sample 2

C

$$\frac{7}{11}$$

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Grade 11 Mathematics

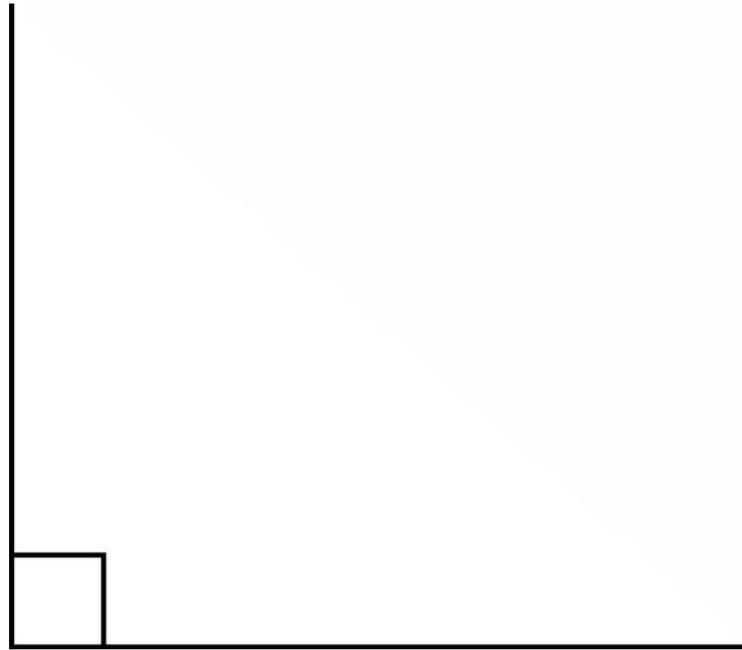
Sample Task 3

Test Administrator Instructions	Score	Student Responses
<p><i>Administration notes:</i></p> <ul style="list-style-type: none"> ▪ You may use objects when presenting questions and answer options. However, some tasks limit how objects can be used; any limitations will be specified on the task. ▪ Repeat the question exactly as it appears at score 3 as many times as needed until the student responds or until it is clear that the student will not respond. 		
<p><u>Present:</u> M11_Sample 3.1</p> <p><u>Say:</u> Which is a right triangle?</p> <p><u>Present</u> the answer options in order. <i>Point to each option as you say it.</i></p> <p>A. Triangle A B. Triangle B C. Triangle C</p>	3	<p style="text-align: center;">Triangle C</p> <p><i>If you believe the student's correct response was unintentional, reorder the answer options to B, C, A (instead of A, B, C). Repeat the question. If the student chooses the correct answer again, the task should be scored a 3. If the student chooses an incorrect answer, continue below.</i></p>
<p><i>Additional administration notes:</i></p> <ul style="list-style-type: none"> ▪ If the student responds incorrectly or not at all, present the task with support as scripted. ▪ Once additional support is provided, the task may not be re-administered for a score of 3. 		
<p><u>Present:</u> M11_Sample 3.2</p> <p><u>Say:</u> A right triangle has a right angle in it. Here is an example of a right angle. Point to the right angle. Which is a right triangle?</p> <p><u>Re-present</u> the answer options in order. <i>Point to each option as you say it.</i></p> <p>A. Triangle A B. Triangle B C. Triangle C</p>	2	<p style="text-align: center;">Triangle C</p> <p><i>If you believe the student's correct response was unintentional, reorder the answer options to B, C, A (instead of A, B, C). Repeat the question. If the student chooses the correct answer again, the task should be scored a 2. If the student chooses an incorrect answer, the task should be scored a 1.</i></p>
	1	<p>Triangle A or Triangle B</p>
	0	<p>Unrelated or none</p>

Grade 11 Math 9.3.3.5: Know and apply properties of right triangles, including properties of 45-45-90 and 30-60-90 triangles, to solve problems.

Which is a right triangle?

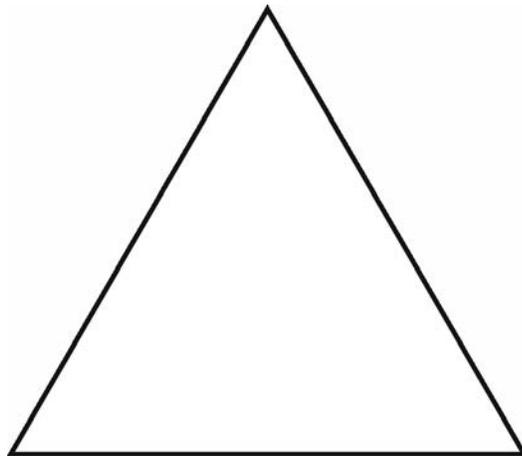
Here is an example of a right angle.



Which is a right triangle?

M11_Sample 3

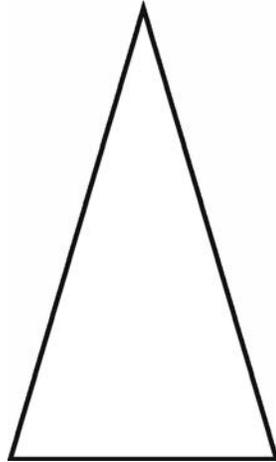
A



Triangle A

M11_Sample 3

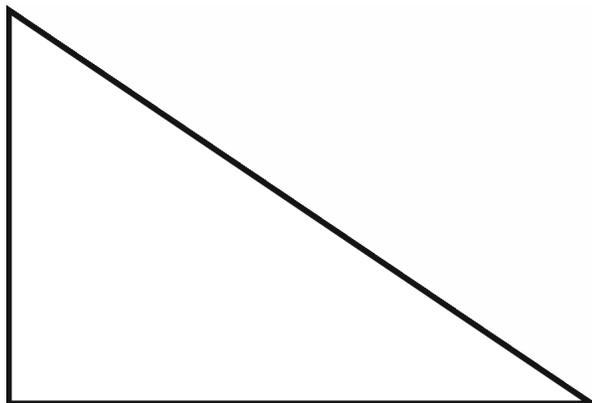
B



Triangle B

M11_Sample 3

C



Triangle C

MTAS Mathematics Object List (Optional) Mathematics Released Questions

The *MTAS Object Lists* for mathematics and science include examples of objects and other variations in the presentation of the MTAS tasks. Some common ways to vary the task presentation include (1) enlarging the Presentation Pages and Response Option Cards or modifying the print and/or graphics to create tactile materials and (2) supplementing numbers in tasks with some type of counter. Test Administrators may use their professional judgment when determining how to present tasks to a student. For example, a blind student may need a combination of objects, tactile graphics, and verbal information. This is allowable as long as the student has all the information needed to respond to the task. These variations may be used with nearly all math and science tasks unless explicitly prohibited in the task script.

Keep in mind that test administrators may use different objects and/or text formats to make tasks more accessible for individual students as long as students are not provided with additional content information. For example, several math tasks incorporate a number line with an unlabeled point. Number lines used in classrooms may not be appropriate for all of the MTAS tasks if all points are labeled in the task script.

Please contact MDE (mde.testing@state.mn.us) if you have questions about objects that may be used to represent MTAS tasks.

Task	Objects
Grade 11 Sample 01	<p>Present task using math tiles or Braille: $2x - 1 = 7$</p> <p>Present additional information for score 2 using math tiles or Braille: $2 \cdot x - 1 = 7$ $2 \cdot 3 - 1 = 7$ $2 \cdot 4 - 1 = 7$ $2 \cdot 5 - 1 = 7$</p> <p>Present answer options using counters or Braille: 3 4 5</p> <p>Note: Total counters needed: 12</p>
Grade 11 Sample 02	<p>Present task using objects, textured pieces, or tactile graphics: 11 yellow fish 7 blue fish</p> <p>Present answer options using fraction bars or Braille: $\frac{11}{18}$: 1 fraction bar with 11 out of 18 parts shaded or textured $\frac{7}{18}$: 1 fraction bar with 7 out of 18 parts shaded or textured $\frac{7}{11}$: 1 fraction bar with 7 out of 11 parts shaded or textured</p>

Grade 11 Sample 03	Present additional information for score 2 using sticky string or tactile graphic: 1 right angle Present answer options using objects: 1 equilateral triangle 1 isosceles triangle 1 right triangle
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