Not for student use.
Use in conjunction with a paper
mathematics item sampler.

Minnesota Comprehensive Assessments-Series III

Mathematics Item Sampler Script
Grade 11

m DEPARTMENT
OF EDUCATION

MINNESOTA COMPREHENSIVE ASSESSMENTS
ITEM SAMPLER
GRADE 11 MATHEMATICS SCRIPT

INSTRUCTIONS CONTAINED IN THE ITEM SAMPLER REFLECT THE CONTENT OF THE
ACTUAL TEST AND MAY NOT APPLY TO THE ADMINISTRATION OF THE ITEM SAMPLER.

This script is for the Test Monitor only; it is not for students. This script is the **only** source a Test
Monitor may use to read the Mathematics MCA test to students. **This script must be used in
conjunction with the grade 11 Mathematics MCA regular print, large print, or braille test
book.** For braille, Test Monitors should also refer to the *Test Administrator Notes* included with
the braille test book.

GENERAL INSTRUCTIONS FOR TEST MONITORS:

- Prior to test administration, review the *Directions for Paper Administrations* for detailed
  policy and procedure information for test administration (e.g., stopping testing for the
  day).
- Before students start the test, read scripted instructions to students from the *Directions for
  Paper Administrations*, as needed.
- Do not discuss test content with the student during or after the test.
- Do not discuss any portion of the test or the student's performance with others.
- Read the applicable guidelines on the following pages for reading the script aloud or
  signing the script (if the student requires the script to be signed).

GUIDELINES FOR READING THE SCRIPT ALOUD

Read Aloud ONLY what is in BOLD TYPE

- Read test content in bold exactly as written, as steadily and clearly as possible without
  changing, emphasizing, or adding information.
- Do not paraphrase, clarify, define, or translate any part of the questions, answer options,
  or instructions in the script.
- Reading additional test content from the test book is not allowed and may require the test
  to be invalidated.
- Respond to student questions using only scripted directions from the *Directions for Paper
  Administrations*.

Respond to the Student's Needs

- Adjust your reading speed and volume if requested by the student.
- After the question and all answer options have been read, allow the student time to
  respond. If the pause has been lengthy, you may ask, "Do you want me to repeat the
  question or any part of it again?" before continuing.

Maintain Neutrality

- Communicate in a neutral tone and maintain a neutral facial expression and posture.
- Do not attempt to solve questions, or determine the correct answer to a question while reading, as this may result in pauses or changes in inflection which may mislead the student.
- Be careful to give equal emphasis to each answer option. If the student chooses an answer before all the answer options have been read, you may ask, "Do you want the other answer options read?" before continuing.

GUIDELINES FOR SIGNED INTERPRETATION OF SCRIPT

Sign ONLY what is in BOLD TYPE

- Sign test content exactly as written, as steadily and clearly as possible without changing, emphasizing, or adding information.
- Do not clarify or define any part of the questions, answer options, or instructions in the script.
- Signing additional test content from the test book is not allowed and may require the test to be invalidated.
- Respond to student questions using only scripted directions from the *Directions for Paper Administrations*.

Use Professional Judgment when Signing

- Do your best to use the same signs if the student requests a portion to be repeated.
- Use signs that are conceptually accurate, with or without simultaneous voicing.
- When using an ASL sign that can represent more than one concept or English word, you must adequately contextualize the word to reduce any ambiguity. You may also spell the word after signing it to remove any doubt about which word is intended.
- If you are unsure how to sign and/or pronounce an unfamiliar word, advise the student of the uncertainty and spell the word.
- In cases where signs give clues to the answer, finger spelling must be used.

Respond to the Student's Needs

- Adjust your signing speed if requested by the student.
- Spell any words requested by the student during the test administration.
- After the question and all answer options have been signed, allow the student time to respond. If the pause has been lengthy, you may ask, "Do you want me to sign the question or any part of it again?" before continuing.

Use Appropriate Physical/Facial Expressions

- Use facial expressions consistent with sign-language delivery; do not use expressions which may be interpreted by the student as approval or disapproval of the student's responses.
- Do not attempt to solve questions, or determine the correct answer to a question while signing, as this may result in pauses or changes in inflection which may mislead the student.
- Be careful to give equal emphasis to each answer option. If the student chooses an answer before all the answer options have been signed, you may ask, "Do you want the other answer options signed?" before continuing.

Say the following before you begin reading the questions on the next page:

> **After I read each question, I will pause for as much time as you need to answer the question. Then I will read the next question. You may ask me to repeat any question as many times as you need.**

We will now begin Segment One (1)**. You MAY use a calculator for this segment.**

Question number one (1)**:**

The population of a type of bacteria doubles every three point five (3.5) **hours. Which expression is a reasonable approximation of how many bacteria there will be in twenty** (20) **hours for an initial population, *P*, of bacteria?**

Choose answer A, B, C, or D.

Question number two (2)**:**

The graph of *y* equals *f* of *x* ($y = f(x)$) is shown.

What is a value of *x* for which *f* of *x* equals four ($f(x) = 4$)?

Choose answer A, B, C, or D.

Question number three (3)**:**

How many solutions does (the equation shown) have?

Choose answer A, B, C, or D.

Question number four (4)**:**

      For which equation is *y* a function of *x*?

      Choose answer A, B, C, or D.

Question number five (5)**:**

      What is the domain of (the function shown)?

      Choose answer A, B, C, or D.

Question number six (6)**:**

      The graph of a function is shown.

      Which statement is true about the rate of change for this function when negative three is less than *x*, which is less than zero $(-3 < x < 0)$**?**

      Choose one of the following answers. (Read answers aloud.)

      A. **The rate of change is constant.**
      B. **The rate of change is decreasing.**
      C. **The rate of change is increasing.**
      D. **The rate of change is negative.**

Question number seven (7):

    Emma takes a job with a starting salary of forty-two thousand dollars ($42,000).
Her salary increases by four percent (4%) **at the beginning of each year. What will
be Emma's salary, to the nearest thousand dollars, at the beginning of year ten** (10)**?**

    Choose one of the following answers. (Read answers aloud.)

    A. **Fifty-seven thousand dollars** ($57,000)
    B. **Fifty-nine thousand dollars** ($59,000)
    C. **Sixty thousand dollars** ($60,000)
    D. **Sixty-two thousand dollars** ($62,000)

Question number eight (8)**:**

    Divide (the expression shown).

    What is the remainder?

    Choose answer A, B, C, or D.

Question number nine (9)**:**

    **A root of function f of x ($f(x)$) is (shown). Which could be an equation for this
function?**

    Choose answer A, B, C, or D.

Question number ten (10)**:**

Please write your answer in the space below the question. You may use the digits: zero through nine (0-9) and the symbols: slash for a fraction bar (/), a decimal (.), and a negative sign (-). If your answer is a mixed number, you must change it to an improper fraction or a decimal.

Tuan wants to make the rectangular frame shown.

Clockwise from the left, the outside of the figure is labeled: thirteen centimeters (13 cm), ten centimeters (10 cm), x centimeters (x cm), x centimeters (x cm). The inside of the figure is labeled: Opening.

It will be ten (10) centimeters wide and thirteen (13) centimeters long. He wants his frame to have a uniform width, x, and a rectangular opening. For what value of x is the area of the opening inside the frame seventy square centimeters (70 cm^2)?

Question number eleven (11)**:**

A scientist begins an experiment with eight hundred (800) bacteria cells. After each ten (10)-hour period, only one-half ($\frac{1}{2}$) the bacteria cells remain. Let t be the number of hours since the beginning of the experiment. Which equation could be used to represent the situation when only two hundred (200) bacteria cells remain?

Choose answer A, B, C, or D.

Question number twelve (12)**:**

Which number is an extraneous solution of the equation (shown)?

Choose answer A, B, C, or D.

STOP

This is the end of Segment One (1) **of your mathematics test.**

If you want to check your answers, you may do so now. You may ask me to repeat any question. You will not be able to come back to these questions later.

Pause while the student checks his or her answers.

After you have checked your answers, seal this segment of your test book.

We will now begin Segment Two (2)**. You MAY use a calculator for this segment.**

Question number thirteen (13)**:**

The surface area of a baseball is one hundred seventy-seven square centimeters
(177 cm^2)**. What is the diameter of the baseball? (Use three point one four** (3.14) **for
pi (π).)**

Choose one of the following answers. (Read answers aloud.)

A. **Three point seven five centimeters** (3.75 cm)
B. **Seven centimeters** (7 cm)
C. **Seven point five centimeters** (7.5 cm)
D. **Fourteen point one centimeters** (14.1 cm)

Question number fourteen (14)**:**

Triangle *RST* is shown.

How many units long is line segment R S ($\overline{RS}$)?

Choose answer A, B, C, or D.

Question number fifteen (15):

Line *m* is parallel to line *n*.

Starting on the left and reading from top to bottom, the figure is labeled: *m*, *X*, forty-two degrees (42°), *Y*, one hundred forty-four degrees (144°), *n*, *Z*. Below the figure it is labeled: Not drawn to scale.

What is the measure of angle X Y Z (∠*XYZ)*?

Choose one of the following answers. (Read answers aloud.)

A. Thirty-six degrees (36°)
B. Forty-two degrees (42°)
C. Seventy-eight degrees (78°)
D. One hundred two degrees (102°)

Question number sixteen (16):

Please write your answer in the space below the question. You may use the digits: zero through nine (0-9) and the symbols: slash for a fraction bar (/), a decimal (.), and a negative sign (-). If your answer is a mixed number, you must change it to an improper fraction or a decimal.

Roads connecting the towns of Oceanside, River City, and Lake View form a triangle. The distance from Oceanside to River City is thirty-eight (38) kilometers. The distance from River City to Lake View is twenty-six (26) kilometers. What is the smallest possible whole number of kilometers between Lake View and Oceanside?

Question number seventeen (17):

In figure *RSTU*, line segment R T ($\overline{RT}$) and line segment S U ($\overline{SU}$) intersect at point *M*, so that line segment R M is congruent to line segment T M ($\overline{RM} \cong \overline{TM}$) and line segment R S ($\overline{RS}$) is parallel to line segment T U ($\overline{TU}$). Which additional information is needed to prove that figure *RSTU* is a rectangle?

Choose answer A, B, C, or D.

Question number eighteen (18):

Please write your answer in the space below the question. You may use the digits: zero through nine (0-9) and the symbols: slash for a fraction bar (/), a decimal (.), and a negative sign (-). If your answer is a mixed number, you must change it to an improper fraction or a decimal.

Maggie and Wei are measuring the distance across a circular fountain indirectly as shown in the diagram.

From top to bottom, the diagram is labeled: *S, T, R, F*.

They find that the length of line segment R S ($\overline{RS}$) is fifteen (15) meters and the length of line segment S T ($\overline{ST}$) is nine (9) meters. Line segment R S ($\overline{RS}$) is tangent to circle *F* and point *T* is on line segment F S ($\overline{FS}$). To the nearest meter, what is the diameter of the fountain?

Question number nineteen (19)**:**

Twelve (12) **students are lined up to have their class picture taken.**

From top to bottom the figure is labeled: twenty-six feet (26 ft.)**, fifty-two degrees** (52°)**.**

The photographer's camera has a picture angle of fifty-two degrees (52°)**. The picture angle limits the width of the photo that can be taken. The line of students is approximately twenty-six** (26) **feet long. About how far must the photographer be from the line of students in order to center all twelve** (12) **students in the picture?**

Choose one of the following answers. (Read answers aloud.)

A. **Fifteen** (15) **feet**
B. **Twenty-seven** (27) **feet**
C. **Thirty** (30) **feet**
D. **Fifty-three** (53) **feet**

Question number twenty (20)**:**

An archaeologist used string to make a grid over an area where she was digging. She discovered a bowl buried at (one, four) (1, 4) **and a tool at (three, ten)** (3, 10) **on her grid. She suspected that an item was buried at the midpoint of the segment connecting the bowl and the tool. At which position on her grid should the archaeologist dig to look for the buried item?**

Choose answer A, B, C, or D.

Question number twenty-one (21)**:**

Please write your answer in the space below the question. You may use the digits: zero through nine (0-9) **and the symbols: slash for a fraction bar** (/)**, a decimal** (.)**, and a negative sign** (-)**. If your answer is a mixed number, you must change it to an improper fraction or a decimal.**

A group of health care providers consists of four (4) **doctors, three** (3) **dentists, and five** (5) **nurses. How many combinations of two** (2) **health care providers of different types are possible?**

Question number twenty-two (22)**:**

Isabella flipped a fair coin one hundred (100) **times. Which statement about Isabella's outcomes is most likely true?**

Choose one of the following answers. (Read answers aloud.)

A. **The coin landed heads up fifty** (50) **times and tails up fifty** (50) **times.**

B. **The number of times the coin landed heads up was less than fifty** (50)**.**

C. **If Isabella continues to flip the coin, the experimental probability of the coin landing heads up will increase.**

D. **If Isabella continues to flip the coin, the experimental probability of the coin landing heads up will approach one-half** ($\frac{1}{2}$)**.**

Question number twenty-three (23)**:**

Please write your answer in the space below the question. You may use the digits: zero through nine (0-9) **and the symbols: slash for a fraction bar** (/)**, a decimal** (.)**, and a negative sign** (-)**. If your answer is a mixed number, you must change it to an improper fraction or a decimal.**

Eli receives a shipment of forty (40) **new books for his bookstore: five** (5) **biographies, twelve** (12) **mysteries, ten** (10) **romances, eleven** (11) **technical books, and two** (2) **cookbooks. Eli randomly picks two** (2) **books from the shipment. What is the probability that he picks a biography first and then picks a technical book?**

Question number twenty-four (24)**:**

Reginald is designing an outdoor art exhibit. He needs a metal equilateral triangle that measures forty (40) **inches on each side. He wants to cut the triangle from a rectangular piece of metal that is forty** (40) **inches long. What is the minimum width of the rectangle Reginald needs to be able to cut out the triangle?**

Choose one of the following answers. (Read answers aloud.)

A. **Twenty times the square root of three over three** ($\frac{20\sqrt{3}}{3}$) **inches**

B. **Twenty times the square root of two** ($20\sqrt{2}$) **inches**

C. **Twenty times the square root of three** ($20\sqrt{3}$) **inches**

D. **Forty** (40) **inches**

STOP

This is the end of the mathematics test.

If you want to check your answers, you may do so now. You may ask me to repeat any question. You will not be able to come back to these questions later.

Pause while the student checks his or her answers.

After you have checked your answers, seal this segment of your test book.

Collect the test materials from the student as specified in the *Directions for Paper Administrations*.