The purpose of these practice test materials is to orient teachers and students to the types of questions on computer-based FSA tests. By using these materials, students will become familiar with the types of items and response formats they may see on a computer-based test. The practice questions and answers are not intended to demonstrate the length of the actual test, nor should student responses be used as an indicator of student performance on the actual test. The practice test is not intended to guide classroom instruction.
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Session 1
1. An expression is shown.
\[
\frac{(4 \times 10^{-3}) + (2 \times 10^{-5})}{(3 \times 10^{7})}
\]
Which expression is equivalent?

- A. \(2 \times 10^{-17}\)
- B. \(2 \times 10^{-12}\)
- C. \(2 \times 10^{-2}\)
- D. \(2 \times 10^{12}\)
2. Select all the sequences of transformations that always maintain congruence.

- ✔ a reflection and then a translation
- ✔ a translation and then a rotation
- ✔ a rotation and then a reflection
- ☐ a dilation and then a reflection
- ☐ a rotation and then a dilation
- ☐ a translation and then a dilation
3. An equation is shown.

\[3^m \cdot 3^n = 3^{-2}\]

What are possible values for \(m\) and \(n\)?

\[m = 1\]
\[n = -3\]

**Other correct responses:** any values for \(m\) and \(n\) such that \(m + n = -2\)
4. A pentagon is shown.

The pentagon is translated 5 units to the left and then reflected over the x-axis.

Other correct responses: the intermediate step of a pentagon with vertices at (-3, -7), (-3, -4), (1, -2), (2, -4), and (2, -7) may be included
5. Create a table of values to show a relation that is **not** a function.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>-2</td>
<td>-4</td>
</tr>
<tr>
<td>0</td>
<td>-7</td>
</tr>
</tbody>
</table>

*Other correct responses:* any set where at least two identical inputs have different outputs
6. Determine whether each number is rational or irrational.

<table>
<thead>
<tr>
<th></th>
<th>Rational</th>
<th>Irrational</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\sqrt{81}$</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>$\sqrt{89}$</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>$\sqrt{121}$</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>$\sqrt{131}$</td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>
7.

The average mass of an ant is approximately $3 \times 10^{-3}$ grams. The average mass of a giraffe is approximately $2 \times 10^3$ kilograms.

About how many times more mass does a giraffe have than an ant?

Other correct responses: any value in the range of 600 million to 700 million
8. Drag the numbers shown to their approximate locations on the number line.
9. A rental car company has a linear pricing plan. The total cost, $C$, to rent a car for 2, 4, 6, and 10 days, $d$, is shown.

<table>
<thead>
<tr>
<th>Days ($d$)</th>
<th>Total Cost ($C$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>$105</td>
</tr>
<tr>
<td>4</td>
<td>$195</td>
</tr>
<tr>
<td>6</td>
<td>$285</td>
</tr>
<tr>
<td>10</td>
<td>$465</td>
</tr>
</tbody>
</table>

A. What is the daily rate for the pricing plan?

B. Write an equation that represents the pricing plan.

A. 45

B. $C=45d+15$

Other correct responses: for part B, any equivalent equation
GO ON TO THE NEXT PAGE.
This is the end of Session 1.
Session 2
10. A scatter plot is shown.

Which statement is true for the scatter plot?

A  The data show no association.
B  The data show a positive correlation.
C  The data show a negative correlation.
D  The data show a nonlinear association.
11. Select the number of solutions for each system of two linear equations.

<table>
<thead>
<tr>
<th></th>
<th>Zero Solutions</th>
<th>One Solution</th>
<th>Infinitely Many Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2x + 2y = 3$</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>$4x + 4y = 6$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$7x + 5y = 8$</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>$7x + 7y = 8$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$-2x + 3y = 7$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2x - 3y = -7$</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
12.

Two linear functions are shown.

Function 1:

Function 2:

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-4</td>
</tr>
<tr>
<td>0</td>
<td>-3</td>
</tr>
<tr>
<td>2</td>
<td>-2</td>
</tr>
</tbody>
</table>

Create an equation for a third function that has a greater rate of change than one function but a smaller rate of change than the other function.

\[ y = x \]

**Other correct responses:** any equation in the form \( y = mx + b \), where \( 0.5 < m < 2 \)
13. Which sequence of transformations results in figures that are similar but not congruent?

A. 90° clockwise rotation, translation 5 units to the left

B. reflection across the x-axis, dilation with a factor of \( \frac{1}{2} \)

C. translation 3 units down, reflection across the y-axis

D. reflection across the x-axis, translation 7 units to the left
14. Two collinear points are given in the table. Give a third point that is also on this line.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>y</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>-3</td>
</tr>
<tr>
<td>-4</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other correct responses:** any coordinate pair that satisfies the equation

\[ y = \frac{-3}{4}x \]
15. The amount of money Alan earns as a plumber after $x$ hours is modeled by the equation $y = 25x + 50$.

What is the meaning of $25$ in this model?

Hourly rate of pay

Other correct responses include:

- hourly rate
- amount he earns per hour
- amount he charges per hour
16. A right square pyramid is shown.

The base has a side length, $b$, of 30 centimeters (cm). The height, $h$, is 10 cm.

What is the length, in centimeters, of $l$?

$\sqrt{325}$

*Other correct responses: any expression with a value between 18 and 18.03*
17. The function \( y = 3.50x + 2 \) represents the total amount of money, \( y \), saved over \( x \) weeks.

What is true about the function?

- It is linear because it is always increasing.
- It is linear because it increases at a constant rate.
- It is nonlinear because it is always increasing.
- It is nonlinear because it increases at a constant rate.
18. A cone has a height of 6.4 inches and a diameter of 6 inches.

What is the volume, in cubic inches, of the cone? Use 3.14 for $\pi$.

60.288
19. Select whether each equation has no solution, one solution, or infinitely many solutions.

<table>
<thead>
<tr>
<th>Equation</th>
<th>No Solution</th>
<th>One Solution</th>
<th>Infinitely Many Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3x = 3x + 4$</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>$3x + 4 = 3x + 4$</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>$3x + 4 = 4x + 3$</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
20. Select three side lengths, in centimeters (cm), that can form a right triangle.

- 5 cm
- 6 cm
- 8 cm
- 10 cm
- 11 cm
- 12 cm
21.

Five hundred students were asked whether they prefer apple juice or orange juice. The table shown displays the results.

<table>
<thead>
<tr>
<th></th>
<th>Apple Juice</th>
<th>Orange Juice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>30</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>210</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How many more girls were surveyed than boys?

240
Mary and Kim each take 15 minutes to ride their bikes to school. The graphs of the functions that model their rides are shown, where \( x \) is the time, in minutes, and \( y \) is the distance, in miles.

The graphs are divided into time intervals \( A \), \( B \), and \( C \).

Use the graphs to match each statement with the appropriate person or people.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mary</th>
<th>Kim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rode her bike fastest in interval ( A ), as compared to the rest of her ride</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Stopped for an interval of time</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Rode slower in interval ( C ) than in interval ( B )</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>Lives 0.7 miles from school</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>
23. A figure with parallel lines \( m \) and \( n \) is shown.

What is the measure, in degrees, of \( \angle b \)?

42
A tub that holds 18 liters of water fills with 2 liters of water every 2.5 minutes.

A. Use the Add Arrow tool to create a graph that models the situation for the first 5 minutes.

B. At what rate is the tub filling with water? Drag symbols to the circle and numbers to the boxes to show the rate.

**Other correct responses:** for part A, any graph with a slope of 4/5
25. What is the distance, in units, between A (-1, 3) and B (3, 5)?

\[ \sqrt{20} \]

Other correct responses: any expression with a value between 4.47 and 4.5
26. Which graph represents the line of best fit for the scatter plot?

A

B

C

D
A square is cut in half on the diagonal, creating two equal triangles. Each triangle has an area of 0.32 square units. What is the side length, in units, of the original square?

0.8
28.

Kayden creates a linear function where $x$ is the input, $y$ is the output, and $m$ and $b$ are constants.

A. Which equation could represent Kayden’s function?

- $y = \frac{1}{x} + mb$
- $y = mx + b$
- $x = my + by$

B. Which statement about the graph of Kayden’s function is true for all values of $m$ and $b$?

- The graph is increasing.
- The graph is decreasing.
- The graph goes through the origin.
- The graph has a constant rate of change.
29. This question has two parts.

Suzie’s Plumbing uses a linear model to determine the total cost, in dollars, of a service call.

**Part A.** Using the table below, create an equation to represent the linear model that Suzie’s Plumbing uses to determine the total cost, \( C \), in terms of hours worked, \( h \).

<table>
<thead>
<tr>
<th>Hours Worked ([h])</th>
<th>Total Cost ([C])</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>$110</td>
</tr>
<tr>
<td>3</td>
<td>$145</td>
</tr>
<tr>
<td>6</td>
<td>$250</td>
</tr>
<tr>
<td>8</td>
<td>$320</td>
</tr>
</tbody>
</table>

\[ C = 35h + 40 \]

**Other correct responses:** any equivalent equation

**Part B.** Select the phrases and values to make accurate statements about the service fee and the hourly charge.

The one-time fee is represented by the **initial value** of the function and is $40.

The hourly charge is represented by the **rate of change** of the function and is $35 per hour.
This is the end of Session 2.