Mathematics 7 Example Items are a representative set of items for the ACP. Teachers may use this set of items along with the test blueprint as guides to prepare students for the ACP. On the last page, the correct answer, content SE and SE justification are listed for each item.

The specific part of an SE that an Example Item measures is NOT necessarily the only part of the SE that is assessed on the ACP. None of these Example Items will appear on the ACP.

Teachers may provide feedback regarding Example Items.

(1) Download the Example Feedback Form and email it. The form is located on the homepage of the Assessment website: https://assessment.dallasisd.org.

OR

(2) To submit directly, click “Example Feedback – online form” after you click the Example Items link under ACP Resources on the ACP tab on the Assessment website.

First Semester
2020–2021
Code #: 1071
# STAAR Grade 7 Mathematics Reference Materials

## Linear Equations
- **Slope-intercept form**
  \[ y = mx + b \]
- **Constant of proportionality**
  \[ k = \frac{y}{x} \]

## Circumference
- **Circle**
  \[ C = 2\pi r \] or \[ C = \pi d \]

## Area
- **Triangle**
  \[ A = \frac{1}{2}bh \]
- **Rectangle or parallelogram**
  \[ A = bh \]
- **Trapezoid**
  \[ A = \frac{1}{2}(b_1 + b_2)h \]
- **Circle**
  \[ A = \pi r^2 \]

## Volume
- **Prism**
  \[ V = Bh \]
- **Pyramid**
  \[ V = \frac{1}{3}Bh \]

## Additional Information
- **Pi**
  \[ \pi \approx 3.14 \] or \[ \pi \approx \frac{22}{7} \]
- **Distance**
  \[ d = rt \]
- **Simple interest**
  \[ I = Prt \]
- **Compound interest**
  \[ A = P(1 + r)^t \]
# STAAR GRADE 7 MATHEMATICS
## REFERENCE MATERIALS

### LENGTH

<table>
<thead>
<tr>
<th>Customary</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mile (mi) = 1,760 yards (yd)</td>
<td>1 kilometer (km) = 1,000 meters (m)</td>
</tr>
<tr>
<td>1 yard (yd) = 3 feet (ft)</td>
<td>1 meter (m) = 100 centimeters (cm)</td>
</tr>
<tr>
<td>1 foot (ft) = 12 inches (in.)</td>
<td>1 centimeter (cm) = 10 millimeters (mm)</td>
</tr>
</tbody>
</table>

### VOLUME AND CAPACITY

<table>
<thead>
<tr>
<th>Customary</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 gallon (gal) = 4 quarts (qt)</td>
<td>1 liter (L) = 1,000 milliliters (mL)</td>
</tr>
<tr>
<td>1 quart (qt) = 2 pints (pt)</td>
<td></td>
</tr>
<tr>
<td>1 pint (pt) = 2 cups (c)</td>
<td></td>
</tr>
<tr>
<td>1 cup (c) = 8 fluid ounces (fl oz)</td>
<td></td>
</tr>
</tbody>
</table>

### WEIGHT AND MASS

<table>
<thead>
<tr>
<th>Customary</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ton (T) = 2,000 pounds (lb)</td>
<td>1 kilogram (kg) = 1,000 grams (g)</td>
</tr>
<tr>
<td>1 pound (lb) = 16 ounces (oz)</td>
<td>1 gram (g) = 1,000 milligrams (mg)</td>
</tr>
</tbody>
</table>
A painting of the Eiffel Tower has a length of 20 inches and a width of 14 inches. The painting is also available as a postcard that is 6 inches long. If the painting and postcard are proportional, what is the width of the postcard, in inches?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.

Last year, the enrollment at Cullins MS was 400 students. This year, the enrollment is 480. What is the percent increase in the number of students?

A  120%
B  80%
C  20%
D  17%
3. When the stock market opened on Monday morning, a stock was valued at $42.50. The value of that stock increased by the same amount each day for the next three days. After three days, the value of the stock was $50.00. Which equation is used to find \( x \), the amount the stock rose in value each day?

A. \( 50 = 42.50 + 3x \)
B. \( 50 = 3x \)
C. \( 50 = 42.50 - 3x \)
D. \( 50 = 42.5x \)

4. Alvin is cooking dinner for his family. He purchases 7.2 pounds of shrimp for $36.00. What is the price per pound of the shrimp?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.

5. The solution to an equation is shown on the number line.

The solution to an equation is shown on the number line.

Which equation does this solution represent?

A. \( 2x - 1 = -7 \)
B. \( 2x + 1 = -7 \)
C. \( 4x - 3 = -5 \)
D. \( 4x + 3 = -5 \)
The table shows the number of bags of popcorn recently sold.

<table>
<thead>
<tr>
<th>Popcorn Type</th>
<th>Plain</th>
<th>Salted</th>
<th>Buttered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of bags of popcorn sold</td>
<td>16</td>
<td>20</td>
<td>64</td>
</tr>
</tbody>
</table>

Popcorn is available in small, medium, large, and extra-large sizes. If an equal number of each size is sold, what is the probability that the next bag sold is a large, buttered popcorn based on the table?

A \[\frac{16}{25}\]  
B \[\frac{4}{25}\]  
C \[\frac{1}{16}\]  
D \[\frac{1}{4}\]

In a survey, 102 students were asked to pick their favorite sport. The results of the survey are displayed in the table.

<table>
<thead>
<tr>
<th>Favorite Sport</th>
<th>Sport</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Football</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Baseball</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Basketball</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Soccer</td>
<td>12</td>
</tr>
</tbody>
</table>

If 10,000 students are surveyed, approximately how many students will choose baseball as their favorite sport?

A 2,647  
B 2,700  
C 2,754  
D 3,000
Sarah is preparing for a 5k run next month. She monitors her water intake to make sure she stays fully hydrated. The table shows the total amount of water she drank while training for the race.

<table>
<thead>
<tr>
<th>Day, x</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarts of Water, y</td>
<td>1.5</td>
<td>3</td>
<td>4.5</td>
<td>6</td>
</tr>
</tbody>
</table>

Based on the data in the table, what is the constant rate of change in the number of quarts of water Sarah drinks per day?

A 3  
B 2  
C 1.5  
D 0.75

Ashlee and her friends went on a road trip. It took them 3 hours to drive 105 miles. What is the constant of proportionality that relates $y$, the number of miles they drove, to $x$ the number of hours it took them to reach their destination?

A 21.3  
B 33  
C 35  
D 102

Triangle $ABC$ is similar to triangle $QRS$.

Which statement must be true about these triangles?

A $\angle A$ is congruent to $\angle R$  
B $\overline{AB}$ corresponds to $\overline{QS}$  
C $\angle B$ is proportional to $\angle R$  
D $\overline{BC}$ corresponds to $\overline{RS}$
Andres needs to save $97.50 for the seventh grade field trip. He has 15 weeks to save the money. If he saves the same amount of money each week, how much money must Andres save each week?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.

Which situation best represents the equation $5x + 13 = 48$?

A. Diego has 13 baseball cards. If he buys 5 new baseball cards each week, how many weeks, $x$, will it take for Diego to have 48 baseball cards?

B. Diego has 48 baseball cards. After Diego gives 13 baseball cards to each person at his birthday party, he will have 5 baseball cards remaining. How many people, $x$, were at Diego’s birthday party?

C. Diego has 5 baseball cards. If he buys 13 new baseball cards each week, how many weeks, $x$, will it take for Diego to have 48 baseball cards?

D. Diego has 13 baseball cards. After Diego gives 5 baseball cards to each person at his birthday party, he will have 48 baseball cards remaining. How many people, $x$, were at Diego’s birthday party?
13 Which graph represents the equation $y = \frac{1}{5}x - 5$?

A

B

C

D

14 What is the solution set to the inequality $-2x + 7 < 5$?

A $x < -6$
B $x > -6$
C $x < 1$
D $x > 1$
Tim has a spinner with six congruent sections labeled as shown.

If Tim spins the spinner 300 times, about how many times will it land on green?

Edward participated in the 50-yard dash at the district track meet. If 1 meter ≈ 1.1 yards, approximately how many meters did Edward run?

A  0.022
B  45.5
C  48.9
D  55
LaToya is going to lunch with her friends. She orders one item from each column of the menu shown.

**Lunch Menu**

<table>
<thead>
<tr>
<th>Main Dish</th>
<th>Vegetable</th>
<th>Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pasta</td>
<td>Corn</td>
<td>Soup</td>
</tr>
<tr>
<td>Fish</td>
<td>Carrots</td>
<td>Salad</td>
</tr>
<tr>
<td>Chicken</td>
<td>Sweet Potato</td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>Green bean</td>
<td></td>
</tr>
</tbody>
</table>

What is the probability that LaToya orders pasta with a sweet potato and a salad for lunch?

A $\frac{1}{32}$  
B $\frac{9}{32}$  
C $\frac{3}{10}$  
D $\frac{1}{3}$

John participated a walkathon for his church. He received a pledge from his grandfather. The table shows the relationship between the number of miles John walked and the amount his grandfather pledged.

<table>
<thead>
<tr>
<th>Number of Miles, $m$</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Pledged, $p$</td>
<td>$31.50$</td>
<td>$33.00$</td>
<td>$34.50$</td>
<td>$36.00$</td>
<td>$37.50$</td>
</tr>
</tbody>
</table>

Based on the information in the table, which equation represents the relationship between $p$, the amount pledged, and $m$, the number of miles John walked?

A $p = 1.50m - 30$  
B $p = 1.50m + 30$  
C $p = 30m - 1.50$  
D $p = 30m + 1.50$
### EXAMPLE ITEMS Mathematics 7 Key, Sem 1

<table>
<thead>
<tr>
<th>Item#</th>
<th>Key</th>
<th>SE</th>
<th>SE Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.2</td>
<td>7.5C</td>
<td>Solve mathematical and real-world problems involving similar shape and scale drawings.</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>7.4D</td>
<td>Solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems.</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>7.10A</td>
<td>Write one-variable, two-step equations and inequalities to represent constraints or conditions within problems.</td>
</tr>
<tr>
<td>4</td>
<td>5.00</td>
<td>7.4B</td>
<td>Calculate unit rates from rates in real-world problems.</td>
</tr>
<tr>
<td>5</td>
<td>D</td>
<td>7.10B</td>
<td>Represent solutions for one-variable, two-step equations on number lines.</td>
</tr>
<tr>
<td>6</td>
<td>B</td>
<td>7.6C</td>
<td>Make predictions using experimental data for compound events.</td>
</tr>
<tr>
<td>7</td>
<td>A</td>
<td>7.6C</td>
<td>Make predictions and determine solutions using experimental data for simple and compound events.</td>
</tr>
<tr>
<td>8</td>
<td>D</td>
<td>7.4A</td>
<td>Represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including ( d = rt ).</td>
</tr>
<tr>
<td>9</td>
<td>C</td>
<td>7.4C</td>
<td>Determine the constant of proportionality ( k = \frac{y}{x} ) within mathematical and real-world problems.</td>
</tr>
<tr>
<td>10</td>
<td>D</td>
<td>7.5A</td>
<td>Generalize critical attributes of similarity between similar shapes.</td>
</tr>
<tr>
<td>11</td>
<td>6.50</td>
<td>7.3B</td>
<td>Apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.</td>
</tr>
<tr>
<td>12</td>
<td>A</td>
<td>7.10C</td>
<td>Write a corresponding real-world problem given a one-variable, two-step equation or inequality.</td>
</tr>
<tr>
<td>13</td>
<td>C</td>
<td>7.7</td>
<td>Represent linear relationships using graphs.</td>
</tr>
<tr>
<td>14</td>
<td>D</td>
<td>7.11A</td>
<td>Solve a one-variable, two-step inequality.</td>
</tr>
<tr>
<td>15</td>
<td>50</td>
<td>7.6H</td>
<td>Solve problems using qualitative and quantitative predictions and comparisons from simple experiments.</td>
</tr>
<tr>
<td>16</td>
<td>B</td>
<td>7.4E</td>
<td>Convert between measurement systems, including the use of proportions and the use of unit rates.</td>
</tr>
<tr>
<td>17</td>
<td>A</td>
<td>7.6I</td>
<td>Determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.</td>
</tr>
<tr>
<td>18</td>
<td>B</td>
<td>7.7</td>
<td>Represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form ( y = mx + b ).</td>
</tr>
</tbody>
</table>