Just In Time Quick Check
Standard of Learning (SOL) 7.2

Strand: Computation and Estimation

Standard of Learning (SOL) 7.2 *The student will solve practical problems involving operations with rational numbers.*

Grade Level Skills:

- Solve practical problems involving addition subtraction, multiplication, and division with rational numbers expressed as integers, fractions (proper or improper), mixed numbers, decimals, and percents. Fractions may be positive or negative and are limited to the thousandths place.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
  - 7.2 – Solve Problems Involving Operations with Rational Numbers (Word) / (PDF)
- VDOE Co-Teaching Mathematics Instruction Plans (MIPS)
  - 7.2 Practical Problems (Word) / (PDF)
- VDOE Algebra Readiness Formative Assessments
  - SOL 7.2 (Word) / (PDF)
- VDOE Algebra Readiness Remediation Plans
  - What's the Story? Analyzing Practical Problems (Word) / (PDF)
- VDOE Rich Mathematical Tasks: 7.2 Bake Sale Fundraiser
  - 7.2 Bake Sale Fundraiser Template (Word) / (PDF)

Supporting and Prerequisite SOL: 6.2a, 6.5a, 6.5b, 6.5c, 6.6a, 6.6b, 5.2a, 5.4, 5.5b, 5.6a, 5.6b

SOL 7.2 - Just in Time Quick Check

1. Mr. and Mrs. Horner will be visiting the museum with their three children. Tickets cost $25 for adults and $15.50 for children. How much will it cost for the whole family to visit the museum?

2. Amanda has four boards that are each 64 inches long. She needs to cut each board into multiple pieces that are each $12\frac{4}{5}$ inches long. How many pieces will she have after she cuts all four boards?

3. Lucy and JoJo need to make 140 cupcakes for the school dance.
   - Lucy made $\frac{3}{5}$ of the cupcakes
   - JoJo made 42 cupcakes

   What fraction of the cupcakes do Lucy and JoJo still need to make?

4. Martin would like to start training to run a marathon. The first week he runs a total of 15 miles. He would like to run 30% more miles each week than the week before. How far will Martin run the third week?

5. Joe has $425.50 before he goes shopping. He spends 20% of it on groceries and then $\frac{2}{5}$ of the remaining amount on supplies for an art project. How much money does Joe have left over?

SOL 7.2 - Just in Time Quick Check Teacher Notes
Common Errors/Misconceptions and their Possible Indications

1. Mr. and Mrs. Horner will be visiting the museum with their three children. Tickets cost $25 for adults and $15.50 for children. How much will it cost for the whole family to visit the museum?

   A common error students may make is finding the cost for the three children only or adding $25 and $15.50 without doing any of the multiplication or addition to represent the ticket price for each family member. This may indicate students could benefit from breaking apart the problem into smaller problems. Teachers may consider using a model like the one in the Co-Teaching Mathematics Instruction Plans - 7.2 Practical Problems to help students break apart the problem. Teachers may also consider, for each of these problems, looking at numberless problems to help students create steps to solve similar problems.

2. Amanda has four boards that are each 64 inches long. She needs to cut each board into multiple pieces that are each $12\frac{4}{5}$ inches long. How many pieces will she have after she cuts all four boards?

   A common error students may make is not correctly converting the mixed number into a fraction prior to dividing. This may indicate that students may not recognize that each whole is the same as 5/5. Using concrete representations of mixed numbers may help students understand different ways to show how 64 can be divided by a mixed number.

3. Lucy and JoJo need to make 140 cupcakes for the school dance.
   - Lucy made $\frac{3}{5}$ of the cupcakes
   - JoJo made 42 cupcakes

   What fraction of the cupcakes do Lucy and JoJo still need to make?

   A common error students may make is finding the number of cupcakes left to make and not the fraction representing the part of the whole amount needed that still need to be made. Another misconception is finding the fraction representing those already made instead of the fraction representing the cupcakes that still need to be made. This may indicate students could benefit from practice breaking word problems into parts or using word problem strategies to determine important information. See VDOE Algebra Readiness Remediation Plans- What's the Story? Analyzing Practical Problems for additional practice.

4. Martin would like to start training to run a marathon. The first week he runs a total of 15 miles. He would like to run 30% more miles each week than the week before. How far will Martin run the third week?
   A common error students may make is incorrectly calculating 30% of 15 as 1/3. This may indicate that the student may not recognize that percent is out of 100. This may indicate students could benefit from more practice with practical problems with percents. Teachers may consider using an area model to represent percents.

   Another common error students may make is finding 30% of 15 correctly as 4 ½, and calculating the total miles for the second week correctly, but failing to find 30% of 19 ½ to find the third week. This may indicate students need more practice understanding what it means when a value increases by a certain percentage. Student would benefit from solving similar multi-step problems involving percentages. See question 1 for indications.

5. Joe has $425.50 before he goes shopping. He spends 20% of it on groceries and then $\frac{2}{5}$ of the remaining amount on supplies for an art project. How much money does Joe have left over?

   A common error students may make is determining how much money Joe has spent instead of how much he has left over. This may indicate students could benefit from more practice breaking apart the question and analyzing what it is asking the student to do.

   Another common mistake students may make is to add 20% and $\frac{2}{5}$ or 40% and then multiply the amount of money by 60% to determine what was spent. This student may not understand the correct sequence of calculations necessary to solve the problem. Teachers may want to encourage students to create a visual model of the problem to help students see the sequence of events.