1. Jill is collecting honey from 9 different beehives, and recorded the amount collected, in gallons, from each hive in the line plot shown:
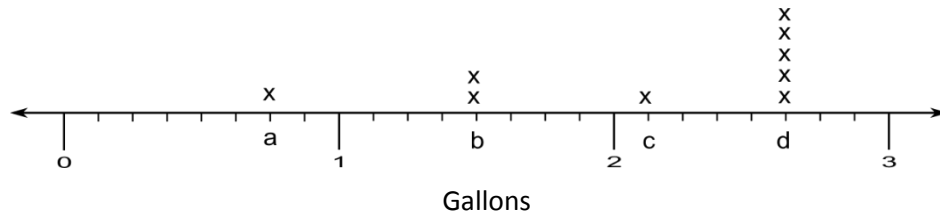
Gallons

She wants to write the value of each point marked on the number line above (Points a–d) in terms of the largest possible whole number of gallons, quarts, and pints. Use the line plot above to fill in the blanks with the correct conversions. (The first one is done for you.)

a. ____0___ gal ___3___ qt _____0__pt

b. _____ gal _____ qt _____pt

c. _____ gal _____ qt _____pt

d. _____ gal _____ qt _____pt

2. Shiloh wants to make 5 pitchers of tea. Each recipe calls for $\frac{1}{4}$ cup of sugar. If she makes 5 pitchers of tea will she have more or less than 1 whole cup of sugar? Explain your reasoning.

3. There are five bakeries. Each bakery bakes 728 trays of cookies in a day. How many trays of cookies can all the bakeries bake in 43 days? Explain your reasoning.

4. Mrs. Allen needs 600 square tiles to cover the family room floor. The tiles come in boxes of 8. How many boxes does Mrs. Allen need? Explain your reasoning.

5.

$$50 \div 2 + 8 - 3 = 2$$

Rewrite, using what you know about order of operations, to show how the problem was solved.

6.
   a. Alex and Chet both collect cards. Write an algebraic equation to show that Alex has twice as many cards as Chet. Let c represent the number of cards Chet has.

   b. If Chet has 8 cards, how many cards do they have altogether?

A Progression Toward Mastery				
Assessment Task Item and Standards Assessed	STEP 1 Little evidence of reasoning without a correct answer. (1 Point)	STEP 2 Evidence of some reasoning without a correct answer. (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)
1 5.NF.3 5.NF.4 5.NF.6 5.NF.7 5.MD.1 5.MD.2	The student has two or fewer correct answers.	The student has three correct answers.	The student has five correct answers.	The student correctly answers all seven items: a. 1 gal, 2 qts 2 gal, 1 pt 2 gal, 2 qt, 1 pt b. 13 gal, 1 pt c. 2 1/9 gal d. 1 7/12 gal e. 1/12 gal f. 6 c g. 12 bottles
2 5.NF.4	The student is unable to find a solution and is unable to explain the reasoning used.	The student finds the solution, but is unable to clearly explain the reasoning used.	The student makes a calculation error in finding a solution, but is able to clearly explain the reasoning used.	The student is able to clearly explain that the product is greater than 1. For example, 5 x ¼ = 5/4 = 1 ¼ or greater than 1.
3 5.NBT.5	The student is able to solve one part of the problem and is unable to clearly explain the reasoning used, or the student is unable to solve any part of the problem and is unable to clearly explain the reasoning used.	The student is able to solve one part of the problem and is able to clearly explain the reasoning used.	The student is able to solve both parts of the problem but is unable to clearly explain the reasoning used.	The student is able to efficiently solve both parts of the problem and is able to clearly explain the reasoning used.

Assessment Task Item and Standards Assessed	STEP 1 Little evidence of reasoning without a correct answer. (1 Point)	STEP 2 Evidence of some reasoning without a correct answer. (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)
4 **5.NBT.6**	The student is unable to solve the problem and is unable to explain the reasoning used.	The student is able to solve the problem, but is unable to clearly explain the reasoning used.	The student is unable to solve the problem but is able to clearly explain the reasoning used.	The student is able to efficiently solve the problem and is able to clearly explain the reasoning used.
5 **5.OA.1**	The student is unable to communicate understanding using parentheses, brackets, or braces in numerical expression.	The student uses parentheses, brackets, or braces in numerical expressions, and evaluates expressions with these symbols with significant errors.	The student uses parentheses, brackets, or braces in numerical expressions, and evaluates expressions with these symbols with minor errors.	The student uses parentheses, brackets, or braces in numerical expressions, and evaluates expressions with these symbols with no errors.
6 **5.OA.2**	The student uses incorrect reasoning for all parts of the task and makes errors in calculation.	The student uses incorrect reasoning for all parts of the task and uses correct calculations.	The student uses correct reasoning for all parts of the task, but makes errors in calculation.	The student uses both correct reasoning and correct calculations for all parts of the task.

Write and interpret numerical expressions.

5.OA.1   Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

5.OA.2   Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 +7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*

Understand the place value system.

5.NBT.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

Apply and extend previous understandings of multiplication and Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

5.NF.3   Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

5.NF.4   Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

       a.   Interpret the product of *(a/b)* × *q* as *a* parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3 × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)*

5.NF.5   Interpret multiplication as scaling (resizing) by:

       a.   Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

       b.   Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a/b = (n×a)/(n×b)* to the effect of multiplying *a/b* by 1.

5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.7   Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Students able to multiple fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade level.)

a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.*

b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*

c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*

Convert like measurement units within a given measurement system.

5.MD.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Represent and interpret data.

5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*