Karen Garraway

EDG565 - Week 12 Reading Quiz

Prof: - Dr. Ruiz

04/12/2023

**Question #1**

**List (3) Common Core Standards for Grade 3 related to multiplication and division.**

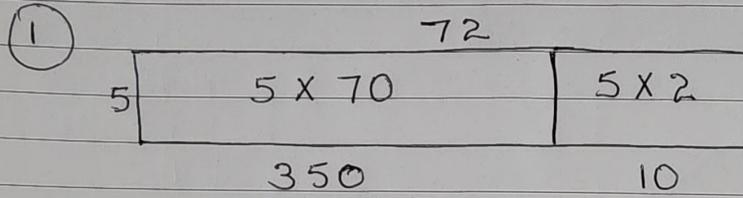Represent and solve problems involving multiplication and division.

1.  3.OA.A.1 - Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each.

2.  3.OA.A.2 - Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

Understand properties of multiplication and the relationship between multiplication and division

3.  3.OA.B.5 - Apply properties of operations as strategies to multiply and divide.

**Question #2**

**Show 3 ways to illustrate 5 x 72(fig. 12.1)**

① 72

| 5 | 5 X 70 | 5 X 2 |
|---|--------|-------|

350         10

② 
$$\begin{array}{r} 72 \\ + 72 \end{array} \rangle 144$$

$$\rangle 288$$

$$\begin{array}{r} 72 \\ + 72 \end{array} \rangle 144$$

$+$

$$72 \longrightarrow \dfrac{72}{360}$$

③ 
$$\begin{array}{r} 72 \\ +72 \\ \hline +144 \end{array}$$

$$\begin{array}{r} + \quad 72 \\ \hline 216 \end{array}$$

$$\begin{array}{r} + \quad 72 \\ \hline +288 \end{array}$$

$$\begin{array}{r} + \quad 72 \\ \hline 360 \end{array}$$

**Question #3**

**What is the difference between a complete number strategy and a partitioning strategy?**

**Complete number strategies** - students who aren't yet comfortable decomposing numbers into parts will approach the numbers in sets as single groups. Often these early strategies will be based on repeated addition, which in the long term is not efficient(234 x 78) or useful(multiplication of fractions. Initially students may list long columns of numbers and add them up. To eliminate this process, students should be encouraged to recognize that if they add two numbers, the next two will be the same sum and so on. This doubling, which capitalizes on distributive properties, can become the principal approach for many students.

**Partitioning strategies** - students decompose numbers in a variety of different ways that reflect an understanding of place value. The "by decades" partitioning strategies, which can be extended by the hundreds, thousands, etc., is the same as the standard algorithm except the students always begin with the largest values. This mental math strategy is very powerful. Another great strategy is to compute mentally with multiples of 25 and 50 and then add or subtract a small adjustment. All partitioning strategies rely on knowledge of distributive properties.(Van de Walle et al, 2019)

**Question #4**

**29 x 40. What are the clusters of known facts a student can use to solve this problem?**

29 x 10

29 x 20

29 x 30

20 x 40

9 x 40

**Question #5**

**Show 3 invented strategies for 29 x 13. Also create a word problem for this.**

All bus tickets for the Sight & Sound trip were sold out. Each bus can accommodate 29

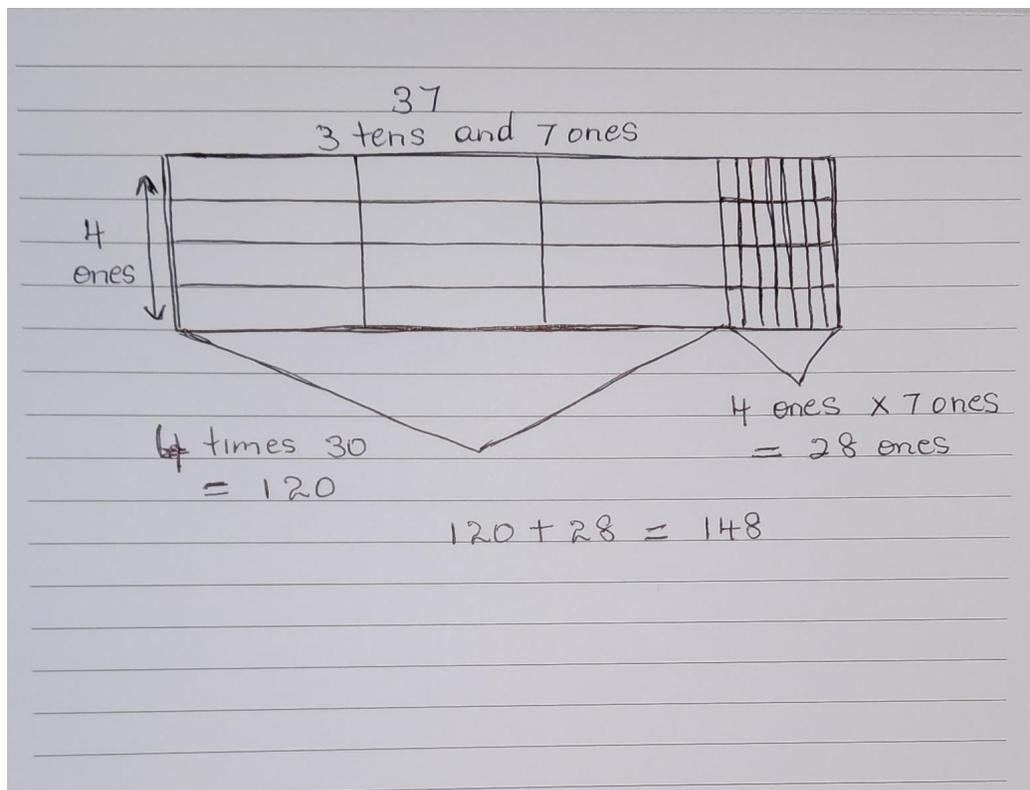students and staff. Thirteen buses were used. How many students and staff went to the show?

(30 x 13) - 13

(29 x 10) + (29 x 3)

(30 x 5) + (30 x 5) + (30 x 3) - 13 (5,5,3)

**Question #6**

**Create a sketch for an area model for 4 x 37cm. garden.**

**Question #7**

**What is the benefit of introducing the open array approach?**

The open array is a semi-concrete representation of the area models and can be successfully used after students experience several constructions of area models with base ten materials. Starting with a blank rectangle, students can mark off areas that align with the use of the distributive properties. Students record partial products inside each subdivision.The open array is a means to connect multi-digit multiplication, and will also connect to future work with multiplication of fractions, two polynomials, and to the history of mathematics through explorations of Egyptian and Russian peasant multiplication(Van de Walle et al., 2019)

**Question #8**

**Watch the video on the lattice method and solve: 36 x 72**

**Question #9**

**What is the benefit of the model in 12.17 over the model 12.16 for learning disabled students?**

Model 12.17 uses repeated subtraction and the measurement model of division which is a well known way to record an algorithm. This approach is a good way to record the missing-factor approach with partial products recorded in the column to the right of the division computation. Students may favor this strategy, especially students who bring this approach from other countries and students with learning disabilities who can select facts that they already know and work from that point. This approach is more explicit and makes it easier to follow the steps than in model 12.16.

**Question #10**

**Watch the associated video and solve using an alternative Explicit Trade Method for 728 divided by 4**
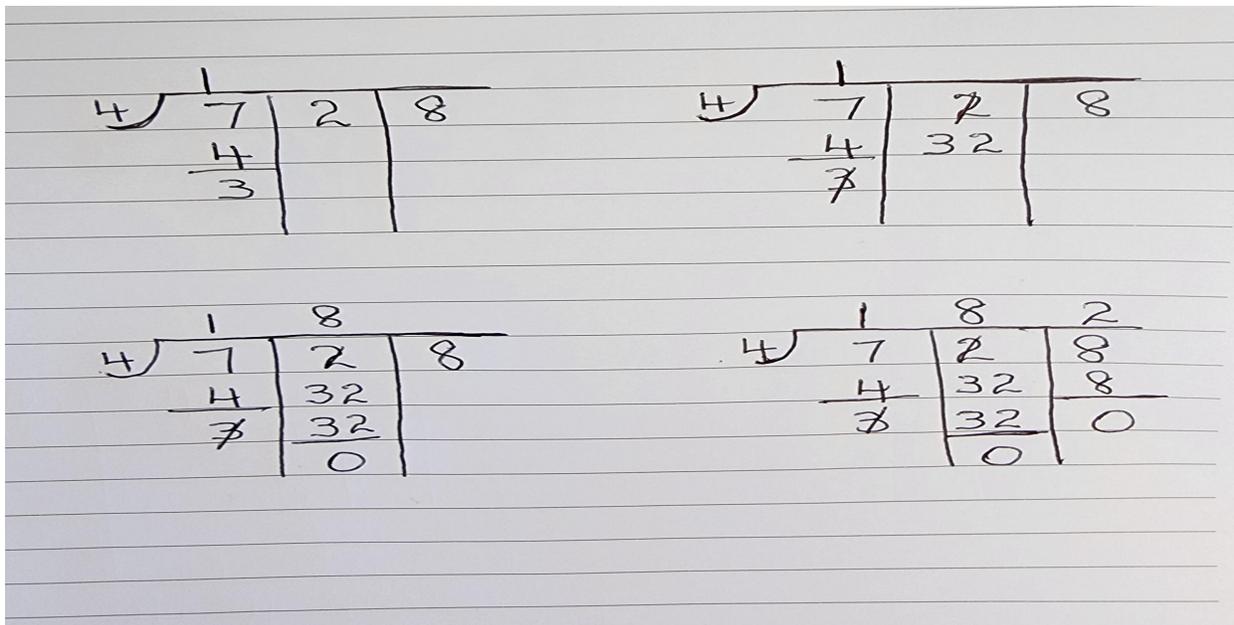
Van de Walle, J. A., Karp, K., & Bay-Williams, J. M. (2019). *Elementary and middle school mathematics : teaching developmentally* (10th ed.). Pearson.