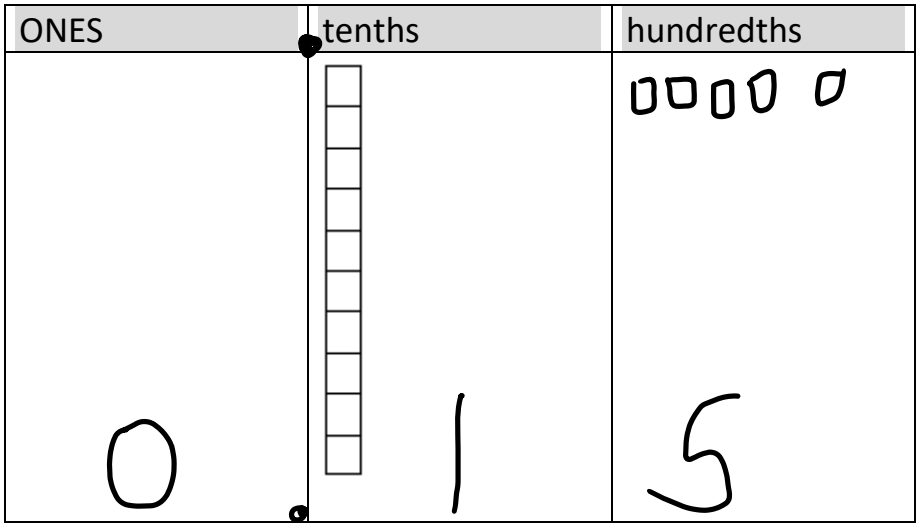
Problem O

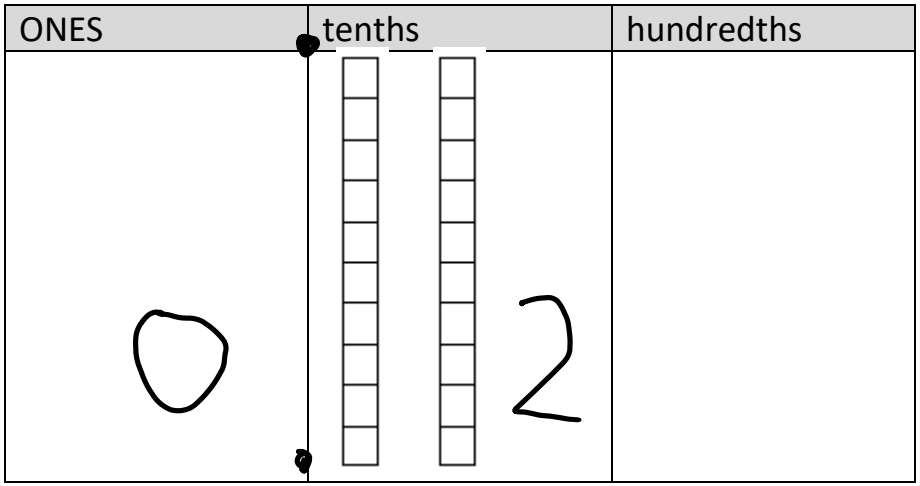


$\frac{15}{100}$ = ?

How many ONES? (0)

15 hundredths split between the tenths place and the hundredths place.

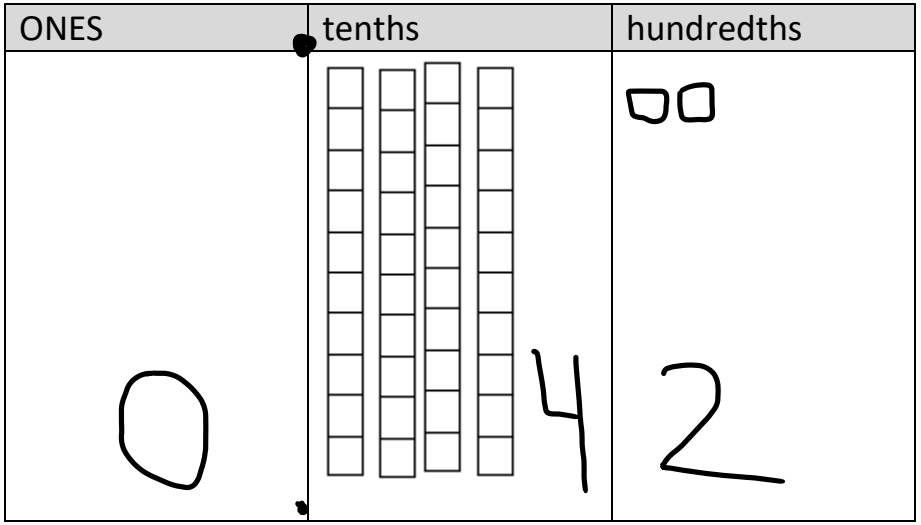
Problem P



$\frac{2}{10}$ = 0.2

How many ONES? (0) How many tenths?(2)

Problem Q

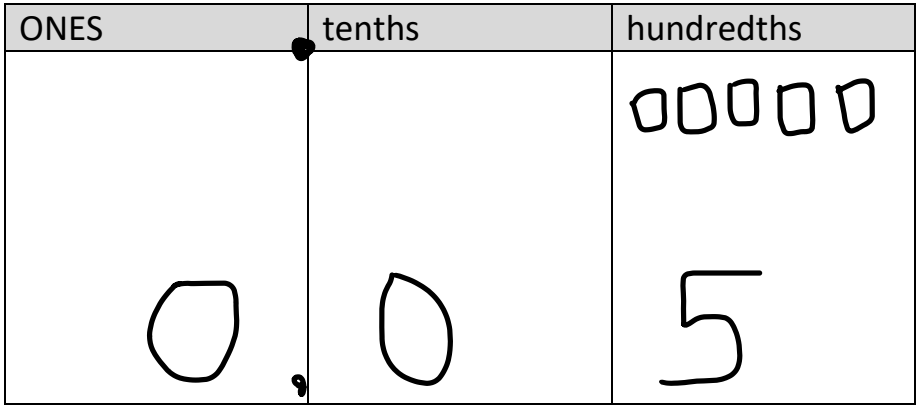


$\frac{42}{100}$ = 0.42

How many ONES? (0)

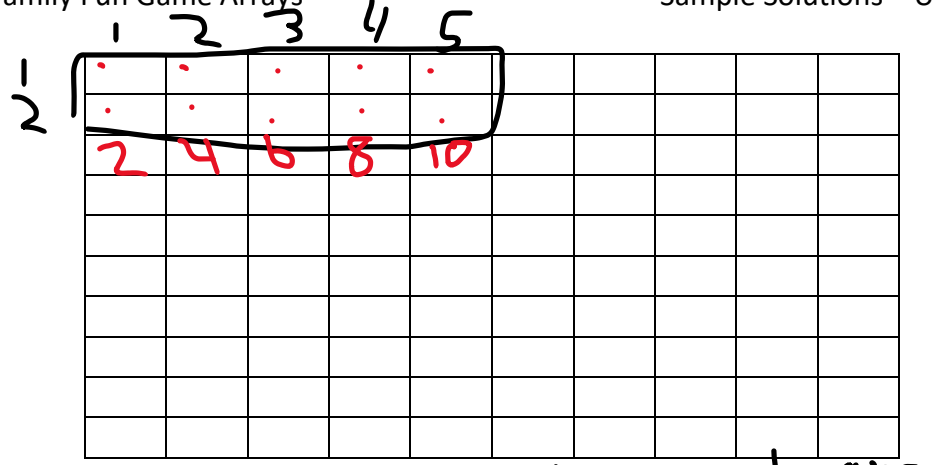
42 hundredths split between the Tenths place and hundredths Place.

Problem R



$\frac{5}{100}$ = 0.05

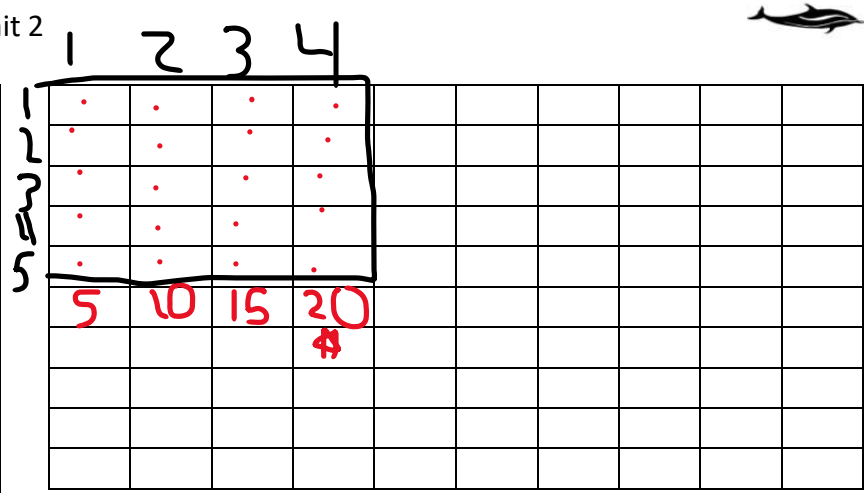
How many ONES? (0) TENTHS? (0) HUNDREDTHS? (5)



2 rows x 5 columns

Problem A:
Fact Family Array

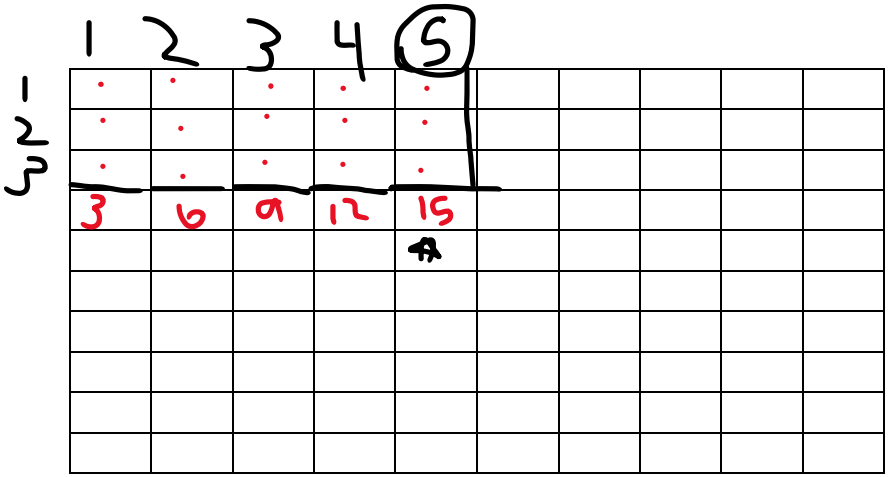
2 x 5 = 10



Problem I:
20 ants
5 equal rows
How many in each row?

20 = 5 x (4)

4 ants



Problem G:
Kayla – 15 buttons
3 buttons per blouse
How many blouses?

3 x (5) = 15

3 buttons = 3
skip count rows to 15
5 blouses

Problem J

ONES	tenths	hundredths
0	7	6

$\frac{76}{100}$ = 0.76

How many ONES? (0)
76 hundredths split between tenths Place (7) and hundredths place (6).

Problem K

ONES	tenths	hundredths
0	0	8

$\frac{8}{100}$ = 0.08

How many ONES? (0) How many tenths?(0)
How many hundredths? (units) (8)

Problem L

ONES	tenths	hundredths
0	1	9

$\frac{19}{100}$ = 0.19

How many ONES? (0)
How many tenths?
How many hundredths? (Units)

Problem P

ONES	tenths	hundredths
0	5	
0	3	3

Show 0.5 and 0.33. Which has more: 5 tenths or 3 tenths + 3 hundredths? How would you write smallest to largest?

Problem A.

ONES	tenths	hundredths
0	9	

$\frac{9}{10}$ = 0.9

How many ONES? (0)
How many tenths? (9)
How many hundredths? (0)

Problem B.

ONES	tenths	hundredths
0	0	6

$\frac{6}{100}$ = 0.06

How many ONES? (0) How many tenths?(0)
How many hundredths? (units) (8)

Answer Key: Examples for solving Family Fun D, E, F for the WHALE cards (Unit 3)

Problem D: Solving 13 by 13 with an array and another way.

	1	2	3	4	5	6	7	8	9	10	11	12	13		
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															

Graphing explained:
13 x 13 = (10 + 3) x (10 + 3)
(When graphing, start with the largest place value, the TENS place in this example.)

10 rows x 10 columns = 100 units

3 rows x 10 columns = 30 units

3 columns x 10 rows = 30 units

Count the single squares left = 9 units

100 + 30 + 30 + 9 =
100 + 60 + 9 = **169 units**

Another method to multiply. *(without the shortcut of carrying or regrouping)*
Note: Students can carry & regroup and other methods of working it out.

Think: 13 = 10 + 3

13 (Start with the ONES place)
X 13
9 (3 ones x 3 ones = 9)
30 (3 ones x 1 ten (10) = 30)
30 (1 ten (10) x 3 ones = 30)
+ 100 (1 ten (10) x 1 ten (10) = 100)
169

Problem E: Solving 11 by 13 with an array and another way.

	1	2	3	4	5	6	7	8	9	10	11	12	13		
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															

Graphing explained:
11 x 13 = (10 + 1) x (10 + 3)
(When graphing, start with the largest place value, the TENS place in this example.)

10 rows x 10 columns = 100 units

1 rows x 10 columns = 10 units

3 columns x 10 rows = 30 units

Count the single squares left = 3 units

100 + 10 + 30 + 3 =
100 + 40 + 3 = **143 units**

One other method to multiply. *(without the shortcut of carrying or regrouping)*
Note: Students can also carry & regroup and other methods of working it out.

Think: 11 = (10 + 1)
13 = (10 + 3)

```
  11    (Start with the ONES place)
X 13
   3    (3 ones x 1 one = 3)
  30    (3 ones x 1 ten (10) = 30)
  10    (1 ten (10) x 1 one = 10)
+100    (1 ten (10) x 1 ten (10) = 100)
 143
```

Problem F: Solving 13 by 15 with an array and another way.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															

Graphing explained:
13 x 15 = (10 + 3) x (10 + 5)
(When graphing, start with the largest place value, the TENS place in this example.)

10 rows x 10 columns = 100 units

3 rows x 10 columns = 30 units

5 columns x 10 rows = 50 units

Count the single squares left = 15 units

100 + 30 + 50 + 15 =
100 + 80 + 15 =
100 + 95 = **195 units**

One other method to multiply. *(without the shortcut of carrying or regrouping)*
Note: Students can also carry & regroup and other methods of working it out.

Think: 13 = 10 + 3
15 = 10 + 5

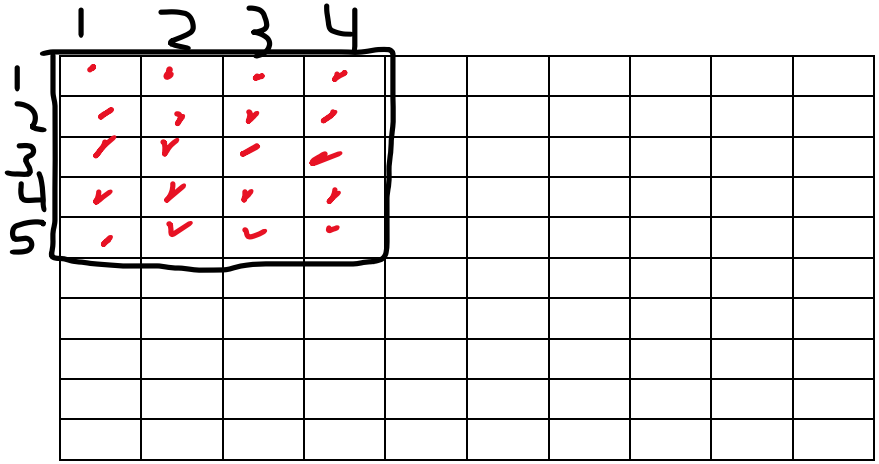
15 (Start with the ONES place)
X 13
15 (3 ones x 5 ones = 15)
30 (3 ones x 1 ten (10) = 30)
50 (1 ten (10) x 5 ones = 50)
+ 100 (1 ten (10) x 1 ten (10) = 100)
195

Problem H. Arrange (0.56 and 0.7 from largest to smallest

- A student might look at the numbers, ignore the decimal point and think "56" is larger than "7"
- Have student draw the decimals or count out the paper rods for tenths and draw the hundredth place.
- The ONES place has the largest value – does one number have more ONES? **(no)**
- The tenths place has the next largest value – does one number have more tenths? **(yes – 0.7 – that is the larger decimal)**

ONES	tenths	hundredths
0 .	5	6

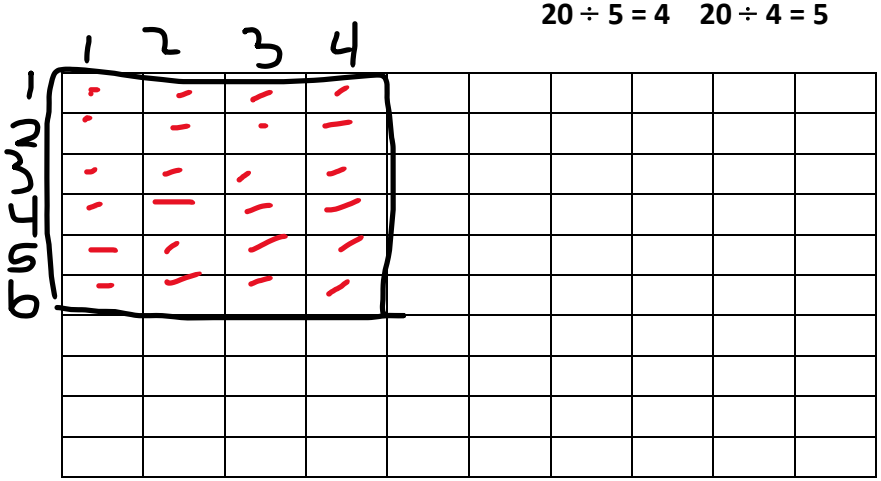
ONES	tenths	hundredths
0.	7	



Problem P. Write the Fact Family for this array.

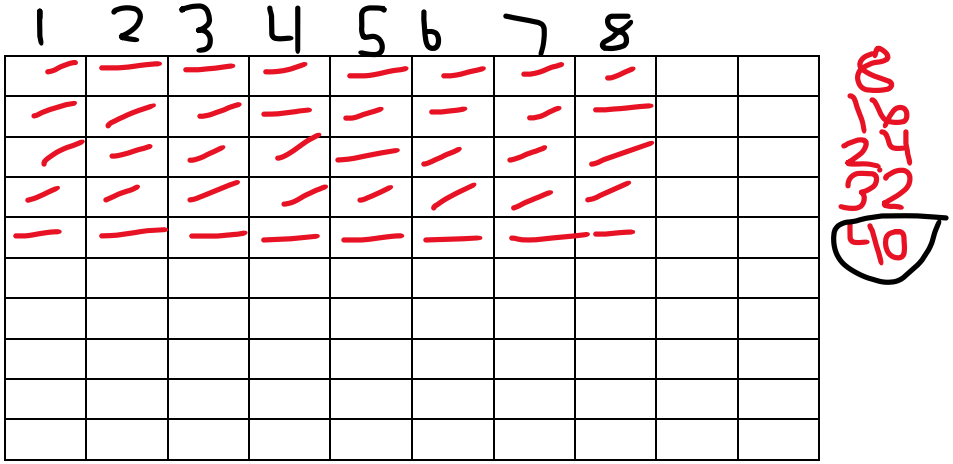
How many rows? **(5)** How many columns? (**4**) How many units altogether inside ? (20) Fact Family: **5 x 4 = 20 4 x 5 = 20**

20 ÷ 5 = 4 20 ÷ 4 = 5



Problem Q. ? ÷ 6 = 4 (if student needs to figure this out)

What starts the Fact Family in division? (**The product/total # inside the array)** What are 6 & 4 in the array? (**one is the # of rows; the other is the # of columns.**) What do you want to use for the rows? 6 or 4? Set up the array and count the units inside. What is the missing number? (24) (24 ÷ 6 = 4)



Problem R. 40 ÷ ? = 8 (if student needs to figure this out)

Do we have the Product/ total # inside the array for this Fact Family? **(yes)**

So in an array, Do you want the "8" to be the rows or columns?

- ***If student chooses columns,*** have student number the columns 1 - 8. (see sample above)
- Now figure out how many rows by counting the units in each row, or skip counting by 8's up to 40.
- How many rows are needed? (5) The missing number is **5 (40 ÷ 5 = 8)**
- ***If the student chooses ROWS***, then have the student number the rows 1 -8 and go and then fill in the columns one at a time until count to 40.

Problem A.

ONES	tenths	hundredths
0 .	8	

$\frac{8}{10}$ = 0.8

How many ONES? **(0)**
How many tenths? **(8)**
How many hundredths? **(0)**

Problem B.

ONES	tenths	hundredths
0 ,	8	0

$\frac{80}{100}$ = 0.80

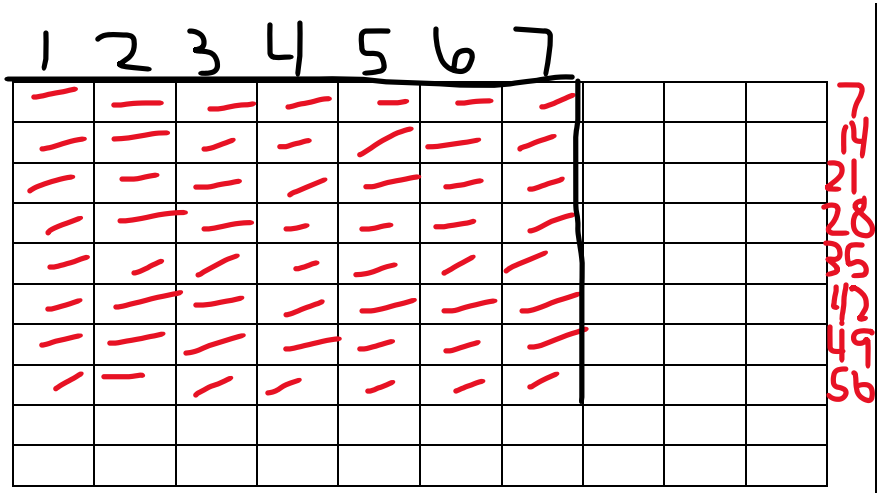
How many ONES? **(0)** How many tenths?**(8**)
How many hundredths? (units) **(0)**

Problem C.

ONES	tenths	hundredths
0 .	0	8

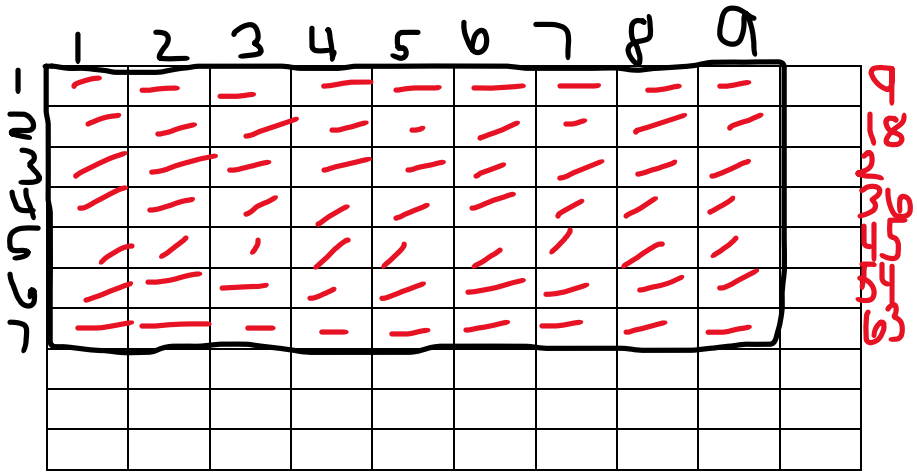
$\frac{8}{100}$ = 0.08

How many ONES? **(0)**
How many tenths? **(0)**
How many hundredths/units? **(8)**



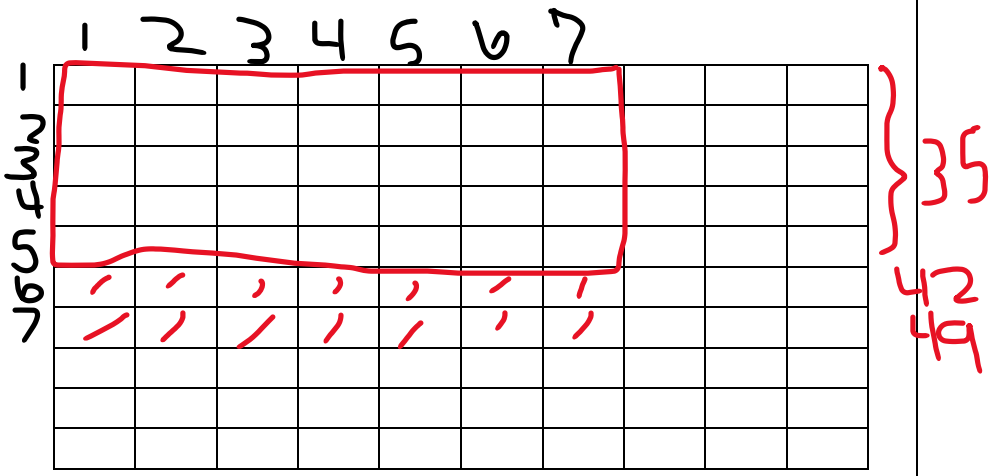
Problem D. __ x 7 = 56 (If student needs assistance)
Thinking about Fact Families and arrays, what is missing? The # for rows or the total product? **(row)**

- Start an array with 7 columns.
- Need to figure out how many rows by counting each unit in each row.
- What total are we trying to reach? **(56**)
- How many rows did we need to get to 56? **(8)**
- The missing number is **8. (8 x 7 = 56)**



Problem E. __ ÷ 7 = 9 (if student needs help)
Thinking about Fact Families and arrays, what is missing? The # for rows or the total product? **(total product).**

- Which number do you want to use for the rows? 9 or 7? (**this sample uses 7 rows)**
- Number the rows and columns, then count.
- The product total is? **(63) 63 ÷ 7 = 9**

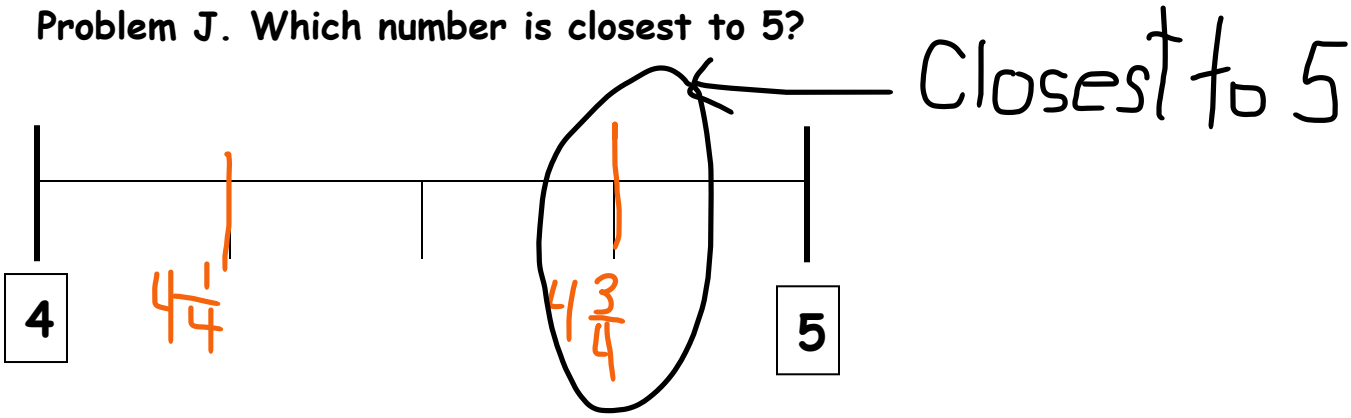


Problem F. ___ ÷ 7 = 7 (if student needs help)

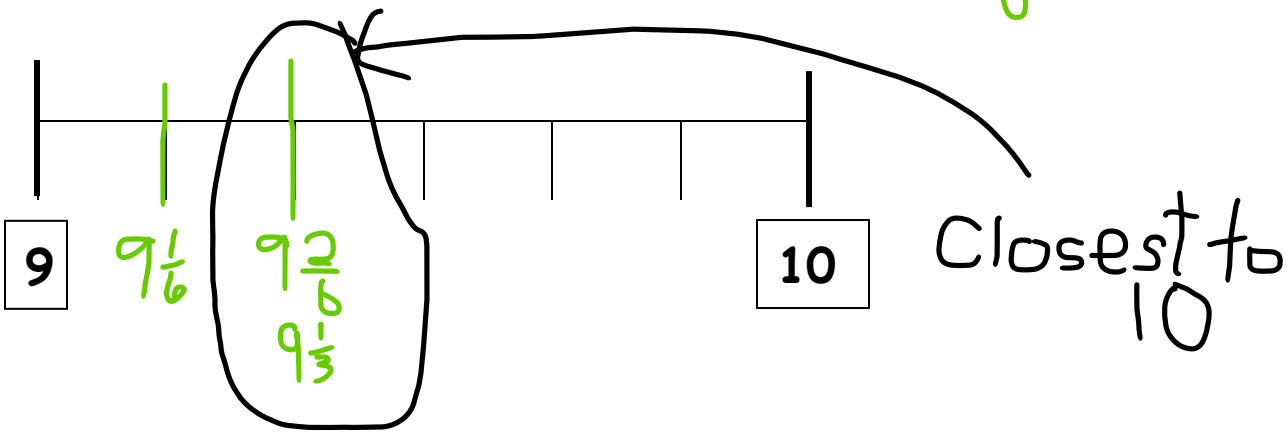
Thinking about Fact Families and arrays, what is missing? The # for rows or the total product? (total product)

- What number do you want for the rows? (😊 **has to be 7!)**
- Number the rows and columns, then count.
- **(depending on the student)** Is there a fast way to know 5 x 7, so we don't have to count every square?
- Do you know what 5 x 7 is? Or count by 5's to figure it out?
- So we can just box 5 x7 because we know that 5 x 7 equals…? **(35)**
- And start counting from 35 for the last two rows.
- The total is… **(49) 49 ÷ 7 = 7**

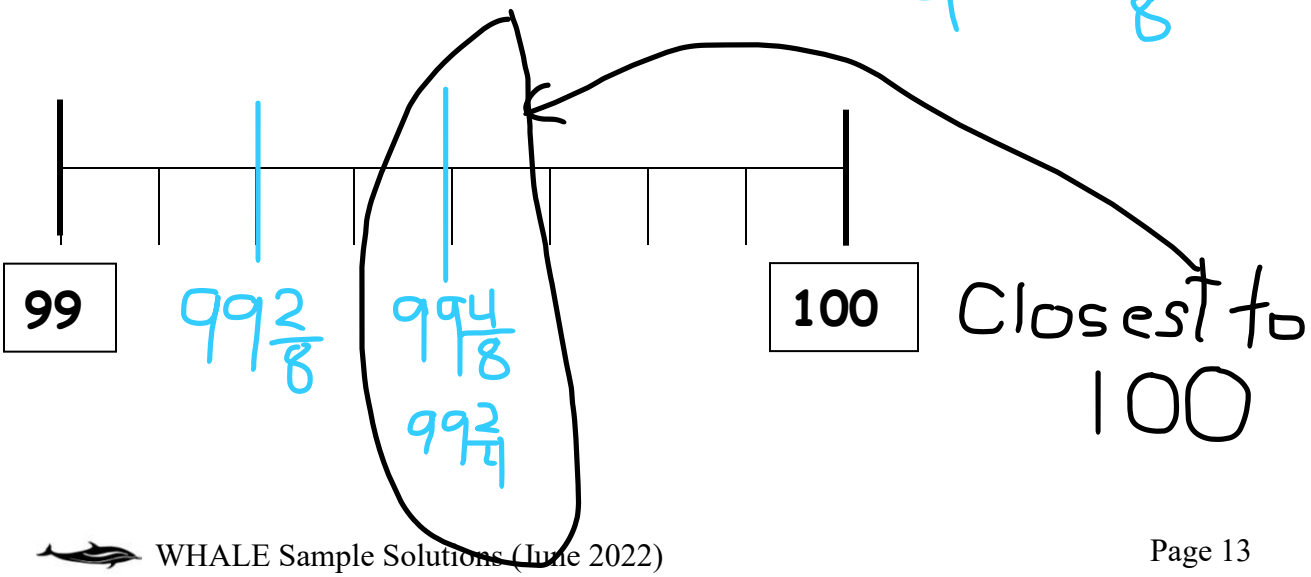
Problem J. Which number is closest to 5?

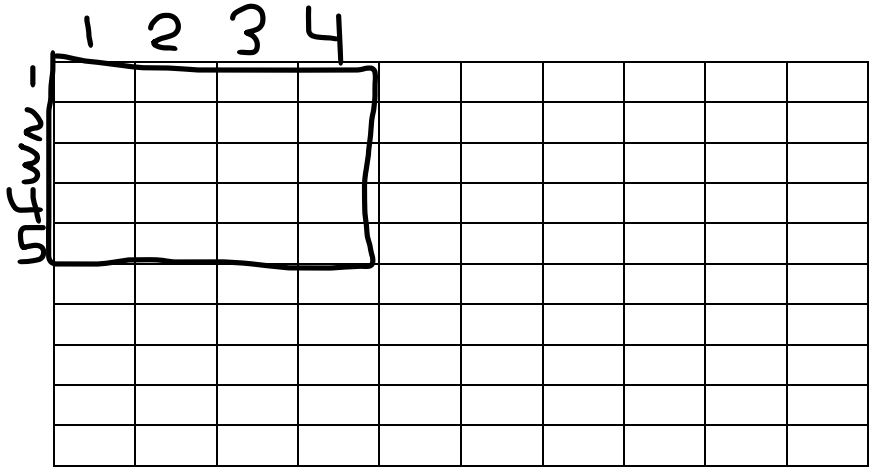


Problem K. Which number is closest to 10? $\frac{1}{3} = \frac{2}{6}$



Problem L. Which number is closest to 100? $\frac{2}{4} = \frac{4}{8}$





Problem D. Draw an array for 5 x 4

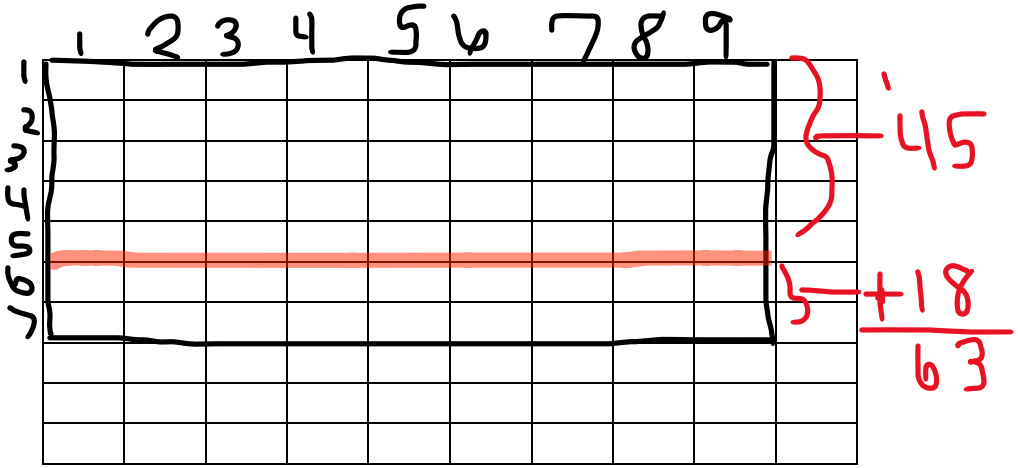
Do you want to make 4 rows with 5 columns or 5 rows with 4 columns?

- Officially, the first factor tells the number of rows or groups in the problem. This can help students decode word problems.
  - 4 rows of 5
  - 4 groups of 5
- In this case, however, the communitive law for mulitiplication works: (4 x 5) = (5 x 4)

Ask student to use the array graphic organizer to draw to show 5 x 4

*Not required from the question, but still ask:

- What does 5 x 4 equal? (20)



E. What's missing? ___ ÷ 7 = 9 *If student needs help:*
What is missing? The row or product total? **(product/total)**

- How can we use the factors 7 and 9 to find out the product or total?
  - **(multiply 7 x 9; skip count; make an array)**

Making an Array: Write numbers to show 7 rows and 9 columns.

Do you know, or can you figure out, what 5 x 9 equals? **(45)**

- Find the 7 rows and make a block for 5 x 9.
- Write "45" instead of counting every square.

Do you know what 2 x 9 equals? **(18)**

- Now that we know one chunk equals 45 and the other part equals 18, what can we do? **(Add: 45 + 18 = ?)**

5 x 9 = 45 **Add: 45 = 40 + 5**
2 x 9 = 18 **+ 18 = 10 + 8**
63 **50 + 13**

50 + 10 + 3 = 60 + 3 = 63

What is the solution for 63 **÷ 7 = 9** ?

ONES	tenths	hundredths
0.	0	02

Problem I: Write decimal for 2/100

- Are there any ONES? **(no)**
  - Write "0" in the ONES place.
- How many tenths are there?**(none, 0)**
  - Write "0" in the tenths place.
- How many hundredths, or units are there? **(2)**
  - Draw 2 units in the hundredths place and write the number "0"
- How do you write the decimal?

$$\frac{2}{100} = \boxed{0.02}$$

ONES	tenths	hundredths
0.	7	5

J. Write decimal for ¾.

If student needs help:

- To find the decimal
  - We can divide the numerator (3) by the denominator (4), or
  - Figure out if the denominator (4^{ths}) has an equivalent fraction in 10^{ths} or 100^{ths}.

If looking for equivalent 10^{th} or 100^{th},

- Do "fourths" have an equivalent fraction to tenths? Does 4 x (anything) = 10? **(no)**
- Do fourths have an equivalent fraction to hundredths? Does 4 x (anything) = 100? How about 4 quarters? Do 4 quarters make $1.00? or 100 cents? **(yes)**

Since 4 x 25 = 100, let's figure out how many hundredths 3 fourths make:

$$\frac{3}{4} \times \frac{25}{25} = \frac{75}{100} = \boxed{0.75}$$