Exploding Dots™

HANDOUTS

Experience 5:

Division

Exploding Dots

Experience 5: Division

Access videos of all *Exploding Dots* lessons at: http://gdaymath.com/courses/exploding-dots/

Handout A: *Division and Remainders*

This picture shows that 276 ÷ 12 equals 23.
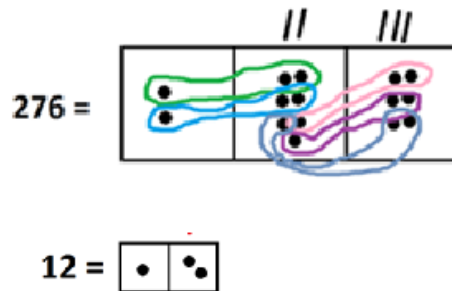
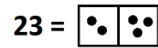**Here are some practice questions you might, or might not, want to try.**

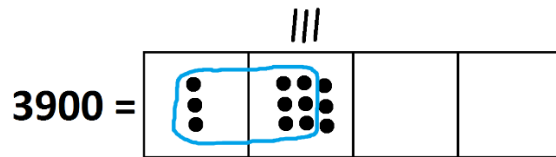1. Compute 2783 ÷ 23 by the dots-and-boxes approach by hand.

2. Compute 3900 ÷ 12.

3. Compute 46632 ÷ 201.

4. Show that 31533 ÷ 101 equals 312 with a remainder of 21.

5. Compute 2789 ÷ 11.

6. Compute 4366 ÷ 14.

7. Compute 5481 ÷ 131.
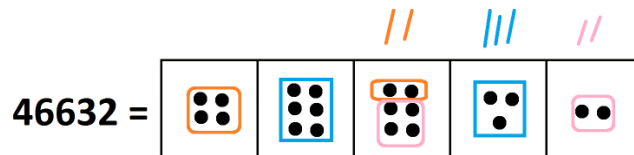
8. Compute 61230 ÷ 5.
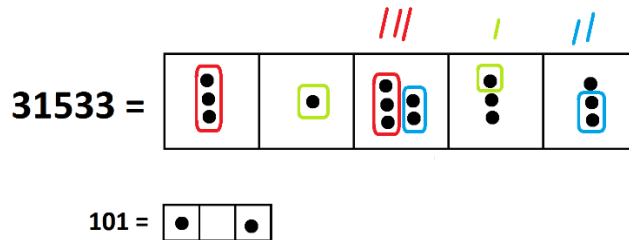
Solutions to Handout A

1. $2783 \div 23 = 121$

2. $3900 \div 12 = 325$. We need some unexplosions along the way. (And can you see how I am getting efficient with my loop drawing?)
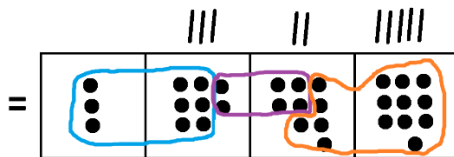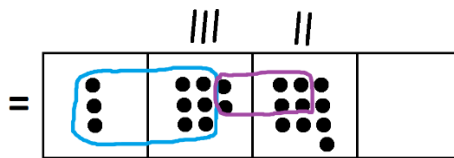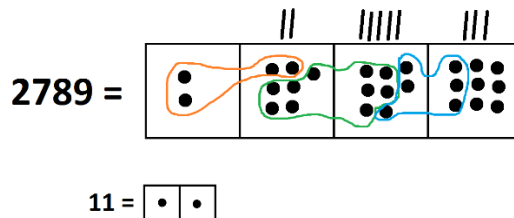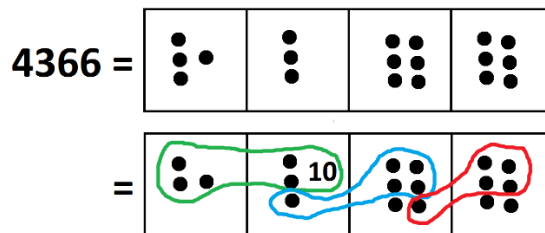

3. $46632 \div 201 = 232$.

4. $31533 \div 101 = 312$ with a remainder of 21. That is, $31533 \div 101 = 312 + \frac{21}{101}$
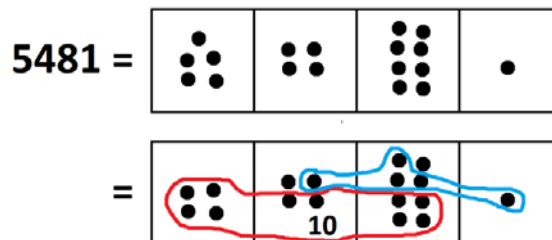

5. We have $2789 \div 11 = 253$ with a remainder of 6. That is, $2789 \div 11 = 253 + \frac{6}{11}$.

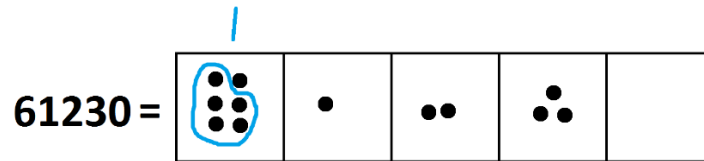

6. $4366 \div 14 = 311 + \frac{12}{14}$.

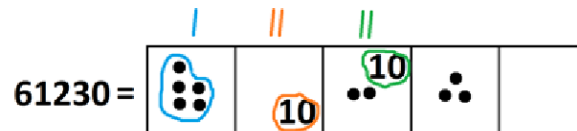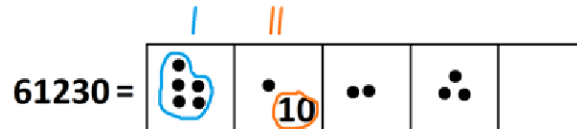7. $5481 \div 131 = 41 + \frac{110}{131}$.

8. We certainly see one group of five right away.

$$61230 = $$

Let's perform some unexplosions. (And let's write numbers rather than draw lots of dots. Drawing dots gets tedious!)

We see $61230 \div 5 = 12246$.


Exploding Dots

Experience 5: Division

Access videos of all *Exploding Dots* lessons at: http://gdaymath.com/courses/exploding-dots/

Handout B: WILD EXPLORATIONS

**Here is a "big question" investigation you might want to explore, or just think about. Have fun!**

EXPLORATION: LEFT TO RIGHT? RIGHT TO LEFT? ANY ORDER?

When asked to compute 2552 ÷ 12, Kaleb drew this picture, which he got from identifying groups of twelve working right to left.
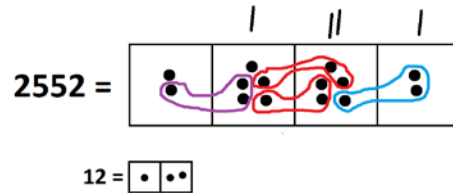
He said the answer to 2552 ÷ 12 is 121 with a remainder of 1100.

Mabel, on the other hand, identified groups of twelve from left to right in her diagram for the problem.
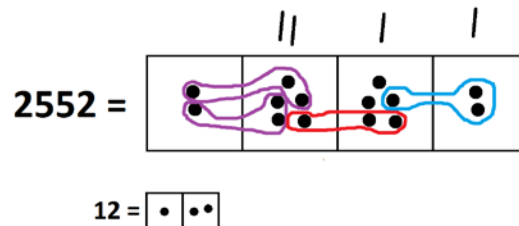
She concluded that 2552 ÷ 12 is 211 with a remainder of 20. Both Kaleb and Mabel are mathematically correct, but their teacher pointed out that most people would expect an answer with smaller remainders: both 1100 and 20 would likely be considered strange remainders for a problem about division by twelve. She also showed Kaleb and Mabel the answer to the problem that is printed in the textbook.

$$2552 \div 12 = 212 \ R \ 8$$

How could Kaleb and Mabel each continue work on their diagrams to have this textbook answer appear?

6