 EXPLODING DOTS 

* 1. **Introduction to the Machine**

**1←2 Machine**

**Question 1:** What is the code for 13?

**Question 2:** What is the code for 50?

**Question 3:** Which number has code 10101  in a 1←2 machine?

**1←3 Machine and Beyond**

**Question 4:** What is the 1←3code for 13?

**Question 5:** What number has 1←3code 1022?

**Question 6:** What is the 1←4code for the number thirteen?

**Question 7:** What is the 1←5 code for the number thirteen?

**Question 8:** What is the 1←10 code for the number 273?

* 1. **What’s This Machine Really Doing?**

**Question 9:** What number has 1←2 code 100101 ?

**Question 10:** What is the 1←2 code for the number two hundred?

**Question 11**: Can you figure out 200 hundred using multiplication or addition?

* 1. **Division**

**Question 12:** How can you model 214,506 ÷102 using dots and boxes?

**Question 13:** How can you model 263 ÷12 using dots and boxes?

* 1. **The 1←x Machine**

**Question 14:**

**1.3 A Peek at a Weird Machine**

**For more information on Exploding Dots:** [**http://gdaymath.com/courses/exploding-dots/**](http://gdaymath.com/courses/exploding-dots/)

**Other courses by James Tanton:** [**http://gdaymath.com/courses/**](http://gdaymath.com/courses/)

* **Fractions are Hard**
* **Quadratics**
* **The Astounding Power of Area**
* **Combinations and Permutations**