

$$\sqrt{144}$$

$\sqrt{144}$

What the heck is that?

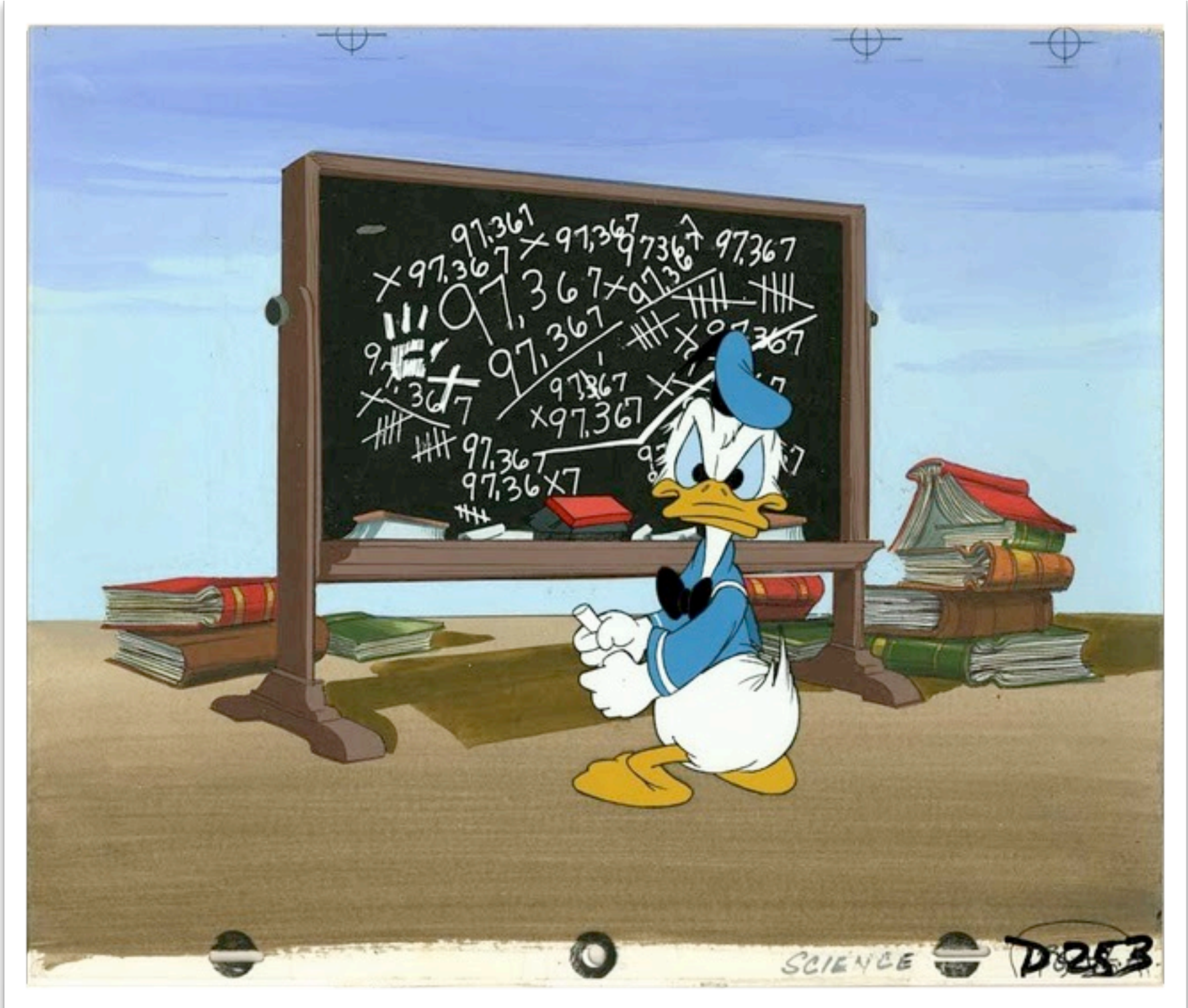
Square Roots

The square root ($\sqrt{\quad}$) of a number finds the factor that when multiplied by itself will give you the square number. In other words it goes from area to side length. Back to the root.

$$\sqrt{144} = 12 \rightarrow 12^2 = 144$$

A square root and a square are opposite operations.

Even donald knows something about square roots.



Exploring Square Roots

FUN WITH SQUARES AND SQUARE ROOTS!

Name:

Date:

Class:

In class we have been observing that any whole number multiplied by itself will give us a square number. Now it's time to look at what the factors of those square numbers tell us.

Factor: A number that divides exactly into another number. For example, 1,2,3 and 6 are factors of 6.



What are all of the factors of 10?
Please help!

| Odd # of Factors | Even # of Factors |
|------------------|-------------------|
| | |

| Odd # of Factors | Even # of Factors |
|------------------|-------------------|
| square number | |

When a number has an odd number of factors, it is a square number.

36 = 1, 2, 3, 4, 6, 9, 12, 18, 36 \longrightarrow 9 Factors

The square number can be always found in the middle.

Fill in this table...

| Square Root | Square Number |
|-------------|---------------|
| 4 | |
| | 64 |
| | 144 |
| 7 | |
| 13 | |
| | 100 |

Your Turn

1. The factors of 136 are listed in ascending order.

$$136 = 1, 2, 4, 8, 17, 34, 68, 136$$

Is 136 a square number?

2. Find:

$$4^2$$

$$6^2$$

$$8^2$$

$$7^2$$

$$9^2$$

$$1^2$$

$$\sqrt{25}$$

$$\sqrt{64}$$

$$\sqrt{81}$$

$$\sqrt{16^2}$$