Simplify

$$\sqrt{144+25}$$

12.2 day 1

$$3^2 = 3 \cdot 3$$

$$\frac{3^{12}}{3^{12}} = 3^0 = 1$$

$$3^{-2} = \frac{1}{3^2}$$

$9^{\frac{1}{2}} = (3^{2})^{\frac{1}{2}} = 3^{1}$

$36^{\frac{1}{2}} = (6^{2})^{\frac{1}{2}} \rightarrow 6^{1}$

$8^{\frac{1}{3}} = (2^{3})^{\frac{1}{3}} \rightarrow 2^{1}$

new notation

$y = 2x - 1$

$f(x) = 2x - 1$ function notation

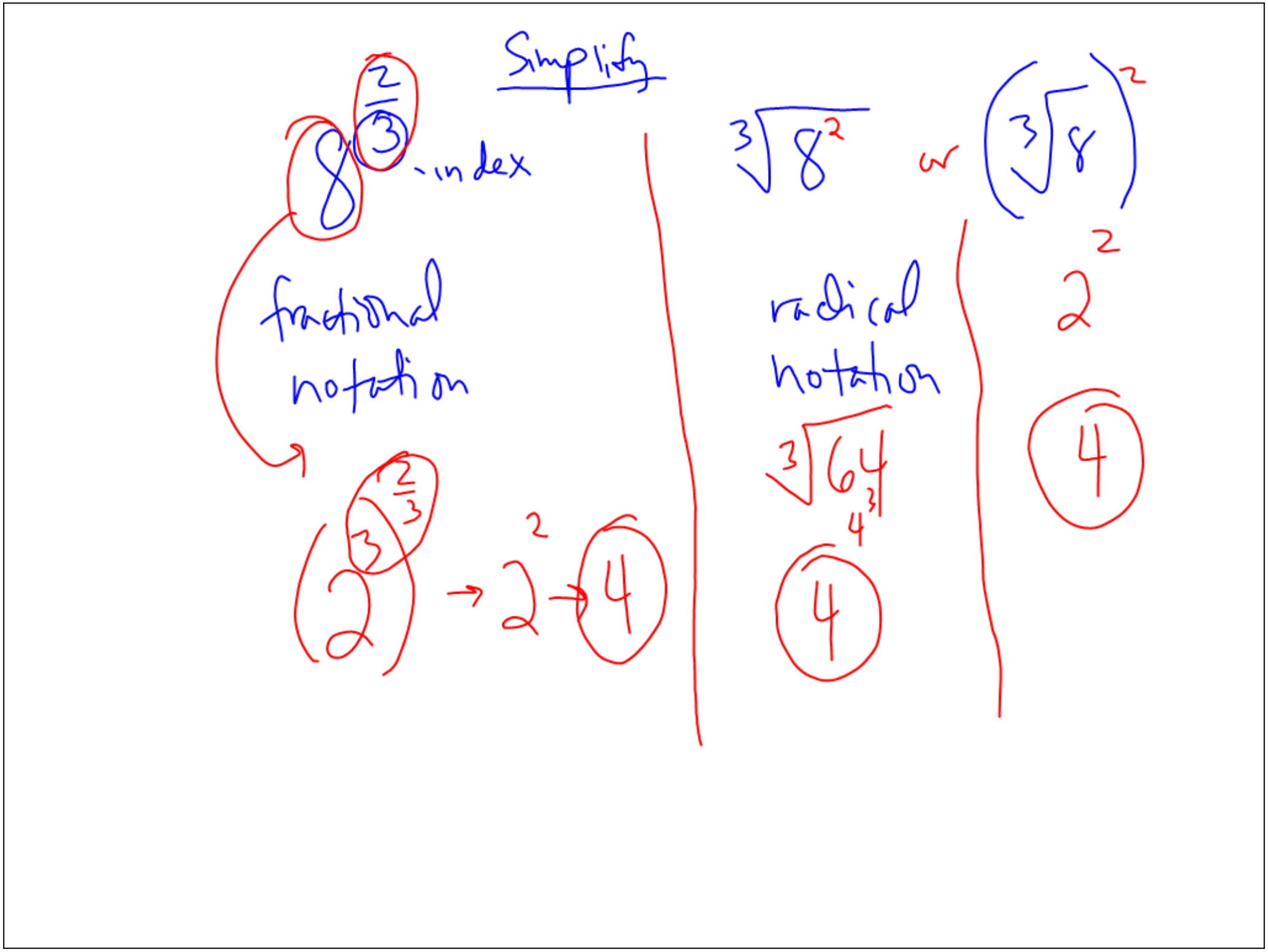
$9^{\frac{1}{2}} = \sqrt[2]{9^1}$

number

$\frac{1}{2}$ fractional

0.5 decimal

50% percent


Simplify
index
fractional notation
radical notation
or

$16^{\frac{3}{4}}$

$(2^4)^{\frac{3}{4}}$

2^3

8

$(\sqrt[4]{16})^3 \rightarrow 2^3$

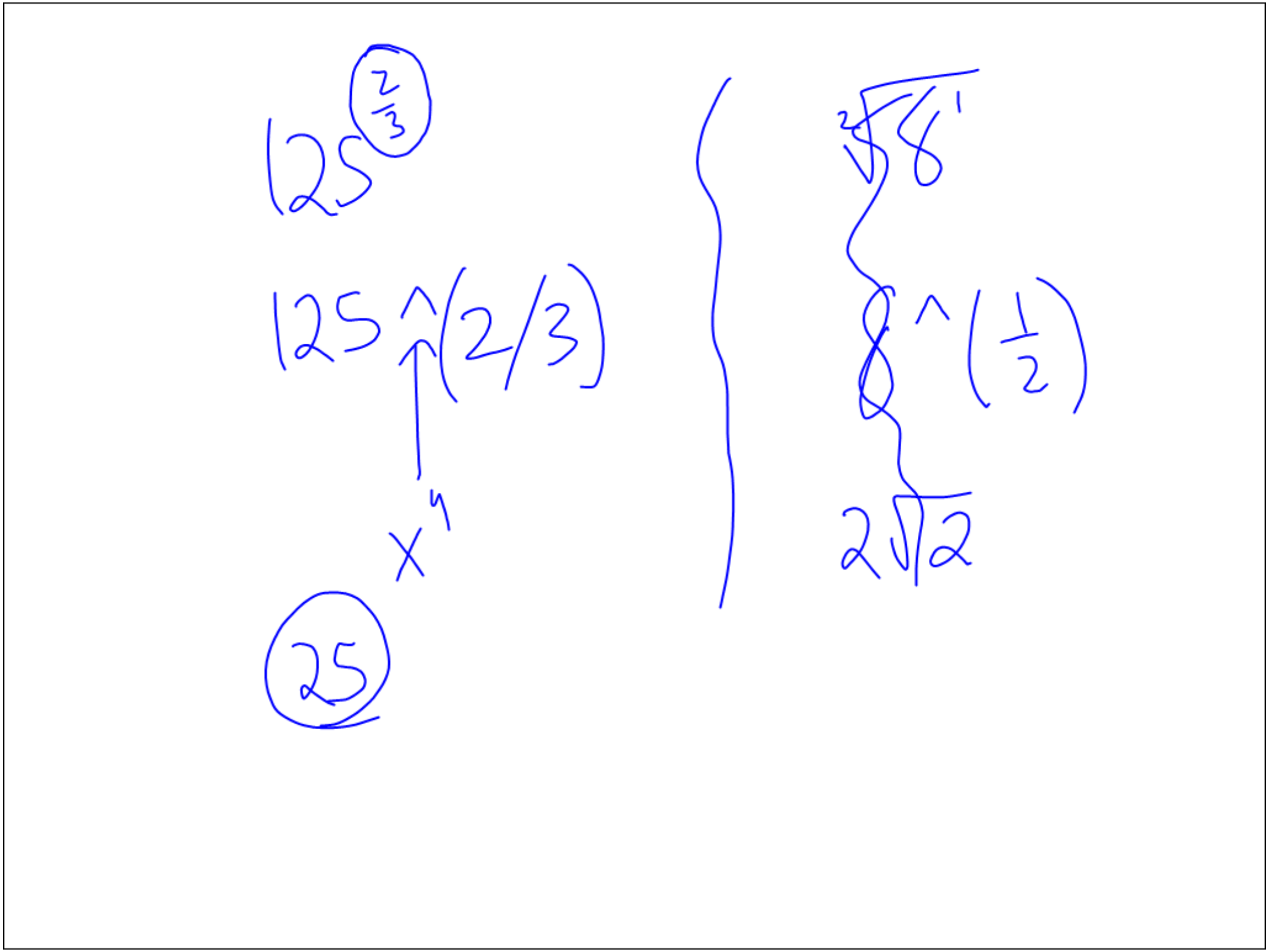
$125^{\frac{2}{3}}$

clicker

$(\sqrt[3]{125})^2$

5^2

25


125^(2/3)
125^(2/3)
x^4
25
8^1
8^(1/2)
2√2

-5^2 $\qquad$ $(-5)^2$

-25 $\qquad$ $+25$

$(-81)^{\frac{3}{4}}$

$(\sqrt[4]{-81})^3$ not real

$= -3^3 = -27$

$(-81)^{(3/4)}$

Clicker

$-81^{\frac{3}{4}}$

$(3^4)^{3/4}$ 3^3 → .

-27

$$8^{-\frac{1}{3}} \rightarrow \frac{1}{8^{\frac{1}{3}}} = \frac{1}{\sqrt[3]{8}} = \frac{1}{2}$$

$$16^{-\frac{1}{2}} \rightarrow \frac{1}{16^{\frac{1}{2}}} = \frac{1}{\sqrt{16}} = \frac{1}{4}$$

$$81^{-\frac{5}{4}}$$

$$\frac{1}{81^{5/4}} = \frac{1}{\left(\sqrt[4]{81}\right)^5} = \frac{1}{(3)^5} = \frac{1}{243}$$

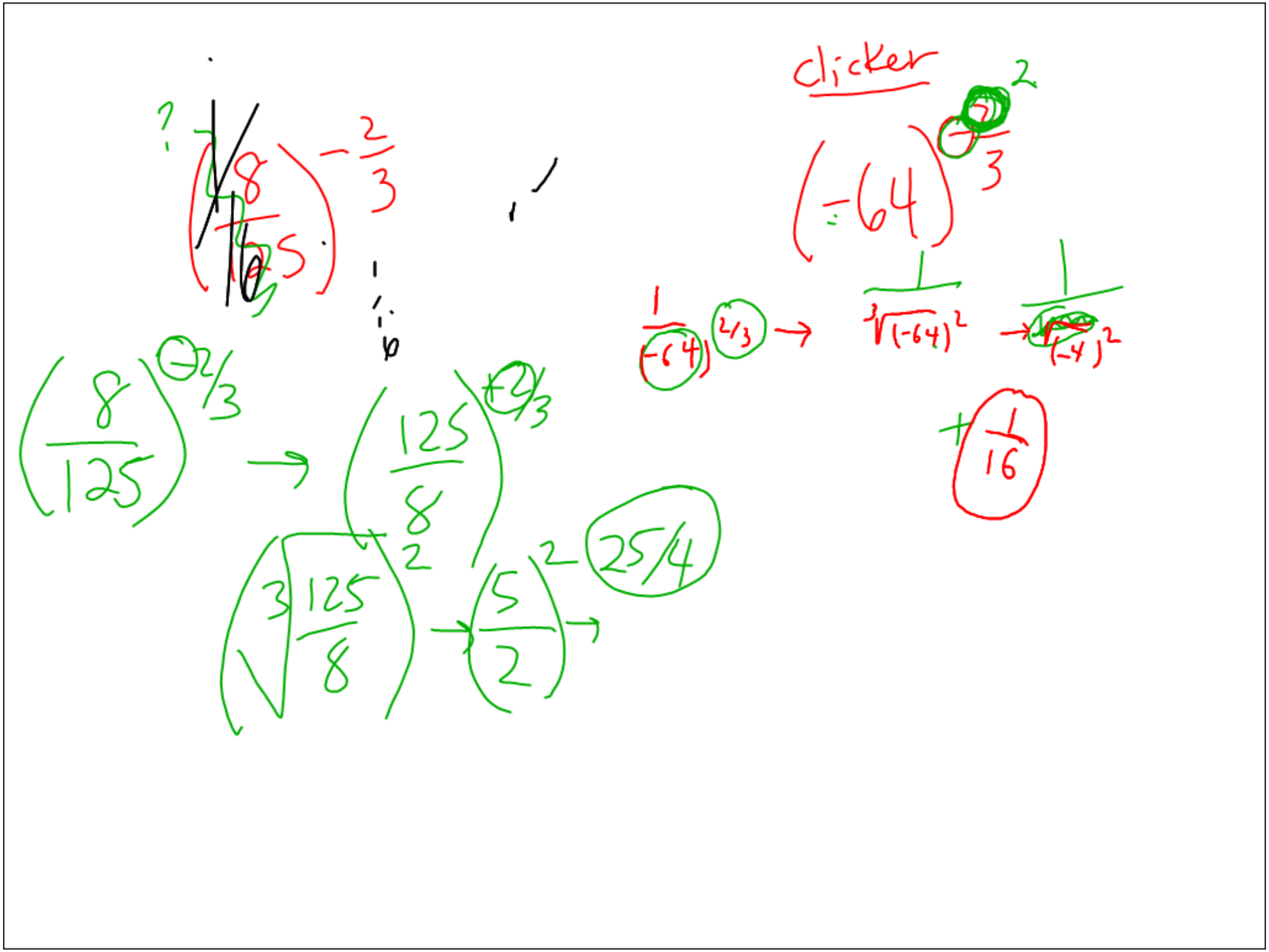
$$81 = (3)^4$$

Clicker

$$(-8)^{-\frac{2}{3}}$$

$$(-8)^{\frac{2}{3}} \rightarrow \left(\sqrt[3]{-8}\right)^2 \rightarrow (-2)^2$$

$$\frac{1}{(-2)^2} \rightarrow \frac{1}{4}$$


clicker
$\left(\frac{8}{125}\right)^{-\frac{2}{3}} \rightarrow \left(\frac{125}{8}\right)^{+\frac{2}{3}}$
$\sqrt[3]{\frac{125}{8}}^{2} \rightarrow \left(\frac{5}{2}\right)^{2} \rightarrow \frac{25}{4}$
$\left(\frac{1}{-64}\right)^{2/3} \rightarrow \frac{1}{\sqrt[3]{(-64)^2}} \rightarrow \frac{1}{(-4)^2}$
$+\frac{1}{16}$

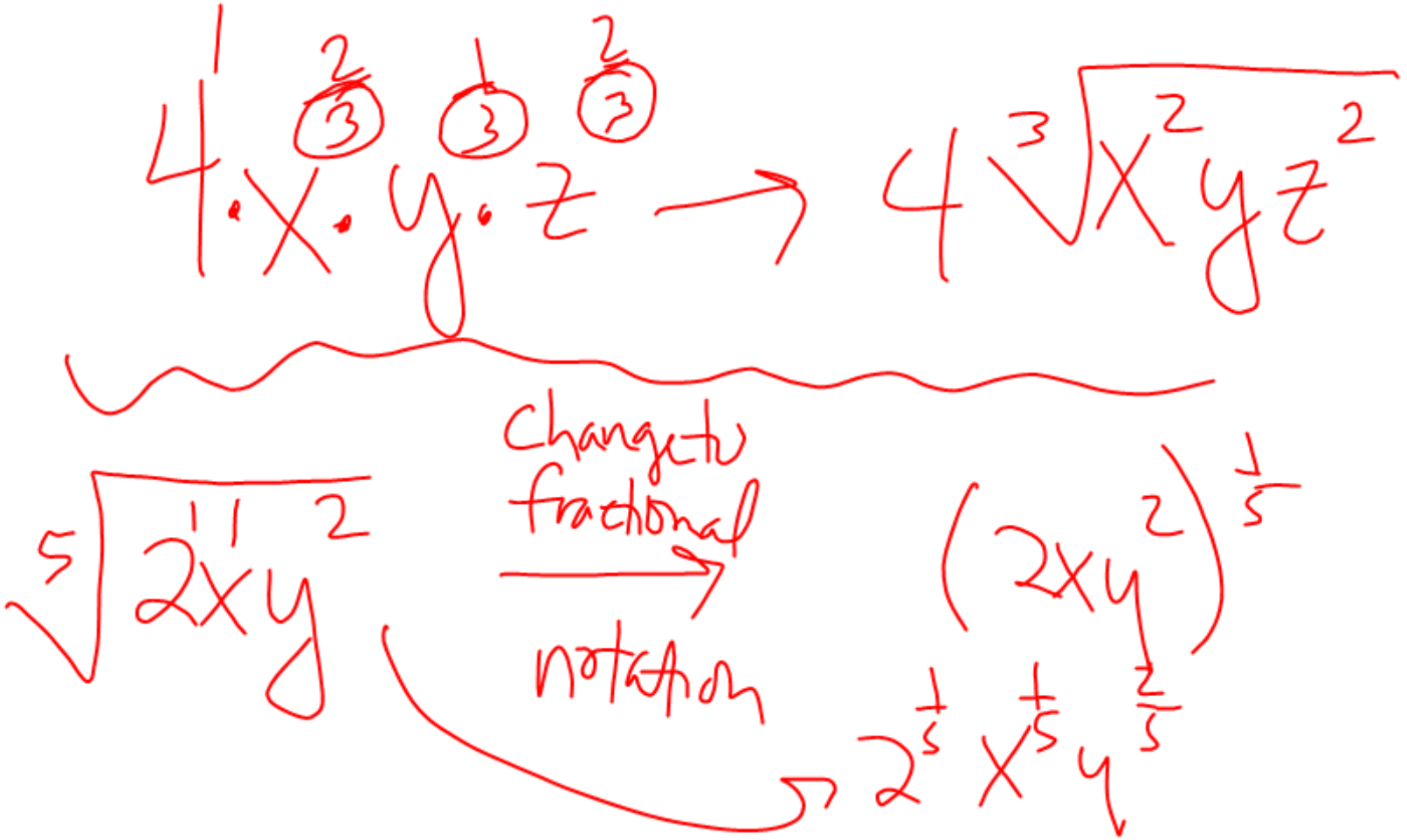
$2x^{\frac{1}{4}}$ write in radical notation $2\sqrt[4]{x^1}$

$(2x)^{\frac{1}{4}} \longrightarrow \sqrt[4]{2x}$

$(3x^2y^5)^{\frac{1}{3}} \longrightarrow \sqrt[3]{3x^2y^5}$

OR

$3^{\frac{1}{3}} x^{\frac{2}{3}} y^{\frac{5}{3}} \longrightarrow$


change to fractional notation

$$3\sqrt[5]{x^2 y^3 z^4} \rightarrow 3x^{\frac{2}{5}} y^{\frac{3}{5}} z^{\frac{4}{5}}$$

fractional