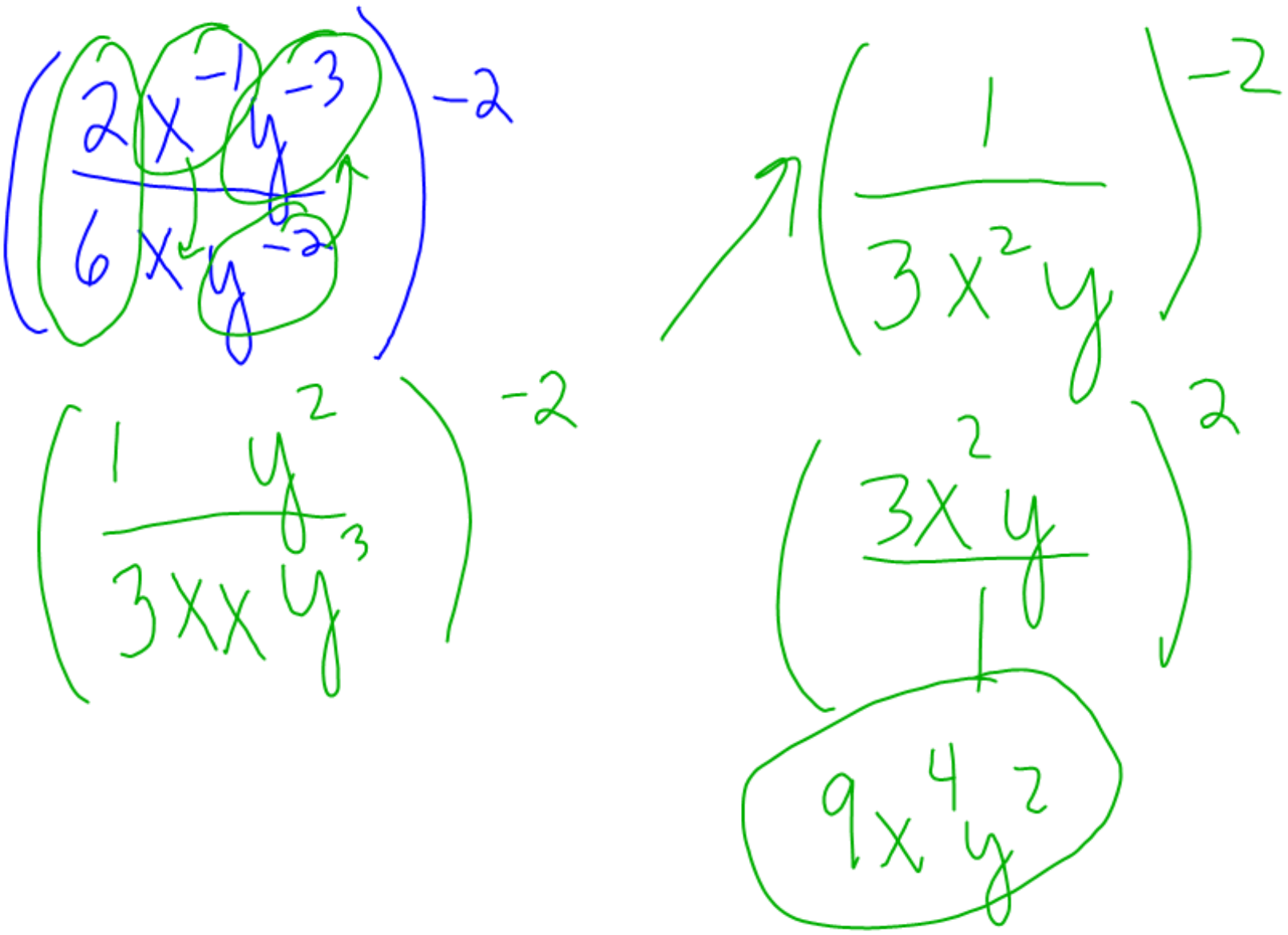
Simplify

$$\left(-\frac{2}{1}\frac{x^{-3}}{1}\frac{y^{5}}{1}\right)^{-3}$$

$$\left(\frac{-2y^5}{x^3}\right)^{-3} \rightarrow \left(\frac{x^3}{-2y^5}\right)^{3}$$

$$-\frac{x^9}{8y^{15}}$$



9.3 Solving linear equation

Solve equations	< >
1. linear	1. linear

linear

highest exponent is 1

3 ways to look at Math

1. Numerically
2. graphically
3. Algebraically

1 variable

1-D

$3x^1 + 2 = 5$

$-2 \quad -2$

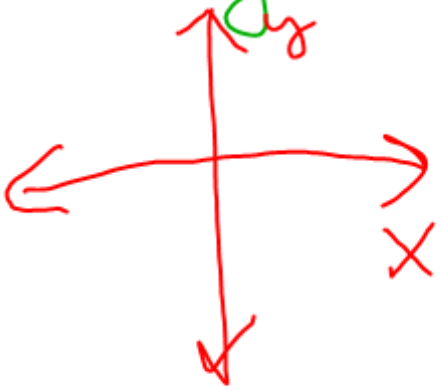
$\frac{3x}{3} = \frac{3}{3}$

$x = 1$ $\{1\}$

2 variables

2-D

$3x^1 - 2y^1 = 5$



Solve

$$\frac{3}{1}\left(\frac{3x}{2}\right) - \frac{6}{1}\left(\frac{5}{1}\right) = \frac{6}{1}\left(\frac{1}{6}\right)$$

LCD = 6

$9x - 30 = 1$

$+30 \quad +30$

$\frac{9x}{9} = \frac{31}{9}$

$x = \frac{31}{9}$

$3\frac{1}{3} + 2\frac{1}{2}$

$\frac{3}{6} + \frac{2}{6}$

$\frac{5}{6}$

Solve

$$\frac{2}{1}\left(\frac{x-2}{3}\right)+\frac{4}{1}\left(\frac{6}{1}\right)=\frac{3}{1}\left(\frac{2x+1}{2}\right)$$

$$2(x-2)+36=3(2x+1)$$

$$2x-4+36=6x+3$$

$$2x+32=6x+3$$

$$-32 \quad\quad -32$$

$$-4x=29$$

$$x=\frac{29}{4}$$

$$3 - 2x \;(<)\; 5$$
$$-3 \qquad\qquad -3$$

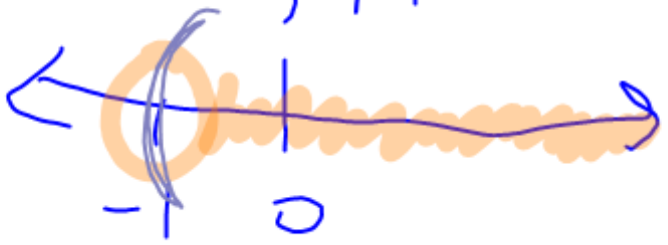
$5 < 5$

$$\frac{-2x}{-2} \;<\; \frac{2}{-2}$$

$$\{x \mid x > -1\}$$

Algebraic = Set builder

graph



Numerically

Interval notation

$$(-1, \infty)$$

[is included

(not included

$\{x \mid x \geq 3\}$

$[3, \infty)$

$-2 < x$

$x > -2$

Solve

$$2x + 3 = 2x + 1$$
$$-2x \qquad -2x$$
$$3 \neq 1$$

F

$\emptyset$

or

$$x - 5 = x - 5$$
$$-x \qquad -x$$
$$-5 = -5$$
$$0 = 0$$

R