

# Equations Project

①

$$e = \sin x + \cos y$$

$$e^{x^2} = e^{2x+3} \Rightarrow x^2 = 2x+3$$

$$c_1 = \int c_1' dx = \int (-1) dx = -x + C_1$$

$$y'' + 4y = \frac{1}{\sin^2 x} \quad |x-y| = ?$$

$$x_{1/2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\lim_{x \rightarrow 0} \frac{x^2 - 3x + \ln x}{2x - 1} = \dots$$



By: Austin, Mia, and Macy

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



# Introduction

I have made this google slide to demonstrate how to solve the following equations.

$$4x = \frac{2}{5}$$

$$x^{-\frac{1}{4}} = \frac{2}{5}$$

$$15 - \frac{2}{3}x = 20$$

$$5 - 2(x - 3) = -23$$

# multiplicative inverse

$4x = \frac{2}{5}$  the next step is to divide both sides by 4

When you divide by four the original 4 cancels out with the other 4 but the  $\frac{2}{5}$  turns in to  $\frac{1}{10}$

So the answer to the problem is  $\frac{1}{10}$ .

# Addition property of equality

$x - \frac{1}{4} = \frac{2}{5}$  the first step is to cross multiply ( $1x \cdot 5$ ) ( $2 \cdot 4$ )

$5x = 8$  When you get done with cross multiplying you have to divide both sides by 5.

So the answer is  $\frac{8}{5}$ .

# subtraction property of equality

$15 - \frac{2}{3}x = 20$       the first step is to simplify the equation.

$-\frac{2}{3} + 15 = 20$       to simplify the equations you have to subtract 15 from both sides.

$-\frac{2}{3}x = 5$       now you have to multiply  $-\frac{2}{3}$  by  $\frac{3}{-2}$  then you have to multiply 5 by  $\frac{3}{-2}$ .

$x = -\frac{15}{2}$

# Distributive property

$$5-2(x-3)=-23$$

The first step is to multiply 2 by the numbers in the parentheses

$$5-2x-6=23$$

The 2nd step is to combine 6 and 5 which equals 11.

$$11-2x=-23$$

The 3rd step is to isolate the variable and what you do to one side you have to do to the other(11 subtracted by 11 then -23 subtracted by 11)

$$-2x=-34$$

The last step you divide -2x in to -34 which is +16 because two negatives equal a positive.

## Example Written Question

two new paragliding shops opened up one store ask for \$150 an hour with \$50 for every paraglider sold. The other store ask for \$250 an hour \$25 for every paraglider sold. How many hours would you have to work to eventually get the same pay from both stores

?  $150x+50=250x+25$

# Example question explanation

$150x+50=250x+25$  the first thing you have to do is simplify by subtracting 250 from both sides  $(250-250)(250-100)$

$-100+50=25$  the 2nd step is to subtract 50 from both sides  $(50-50) (25-50)$

$-100x=-25$  the 3rd step is to divide -100 by -100 and then divide -100 by -25.

The answer to this question is  $1/4$