3.1) Functions

1. Determine whether a relation represents a function

   Solve for $y$

   If you find a value of $x$ that gives two or more values for $y$, then the equation is not a function.

2. Is $7x^2 + 6y^2 = 1$ a function?

   $6y^2 = 1 - 7x^2$

   $y^2 = \frac{1 - 7x^2}{6}$

   $y = \pm \sqrt{\frac{1 - 7x^2}{6}}$

   Challenge: Find a value for $x$ such that when you replace $x$ with that number and simplify, you get two or more real values for $y$.

   If $x = 0$, then

   $y = \pm \sqrt{\frac{1 - 7(0)^2}{6}}$

   $y = \pm \sqrt{\frac{1}{6}}$

   $y = \pm 0.48$ Not a function!
3.1) Functions

1. Determine whether a relation represents a function
   • solve for y
   • if you find a value of x that gives two or more values for y, then the equation is not a function

20) Is \( 7x^2 + 6y^2 = 1 \) a function?

\[ 6y^2 = 1 - 7x^2 \]
\[ y^2 = \frac{1 - 7x^2}{6} \]
\[ y = \pm \sqrt{\frac{1 - 7x^2}{6}} \]

Challenge: Find a value for \( x \) such that when you replace \( x \) with that number and simplify, you get two or more real values for \( y \)

\( \frac{1}{2} \)

if \( x = 0 \), then
\[ y = 1 \sqrt{\frac{1 - 7(0)^2}{6}} \]
\[ y = \pm \sqrt{\frac{1}{6}} \]
\[ y = \pm 1.08 \quad \text{Not a function!} \]