Internet Users *The percent of the U.S. population with Internet access can be modeled by* $y = 1.36x + 68.8$*, with* x *equal to the number of years after 2000. When does this model indicate that the U.S. population with Internet access will reach 96%? (Source: Jupiter Media Metrix)*[1]

Keep in mind that x represents the number of years after 2000 and y is the percent of households with Internet access.

We can solve this problem two ways: Algebraically and Graphically.

Let's start by solving algebraically. That is, we'll use the given equation letting $y = 96$ and solving for x to find the year.

$$\begin{aligned} 96 &= 1.36x + 68.8 \\ 27.2 &= 1.36x \\ 20 &= x \end{aligned}$$

This tells us that 20 years after 2000, in 2020, 96% of the U.S. population will have Internet access.

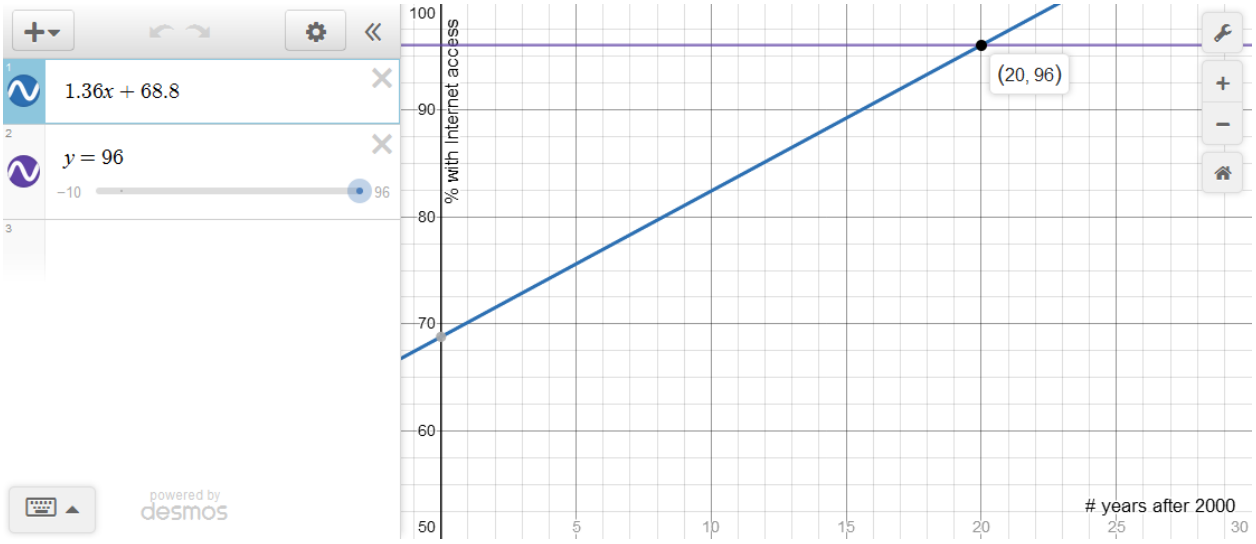
Next, we'll solve the same problem graphically.

I've put x (the independent variable) on the horizontal axis and y (the dependent variable) on the vertical axis.

Graph two lines: $y_1 = 1.36x + 68.8$ and $y_2 = 96$

y_1 shows the relationship between x and y as defined by the given equation.

y_2 shows a constant function that represents a value of 96.



These two lines intersect when $x = 20$ so we can say that 20 years after 2000, in 2020, 96% of the U.S. population will have Internet access.

[1] Harshbarger/Yocco, *College Algebra In Context, 5e*, p. 103, #68.