Making Predictions with Supply and Demand Curves

February 19, 2010

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This is based on another assumption, that we will produce an amount related to how much we think we can get for each computer. This, in turn, will depend on how many computers are on the market in a given year.

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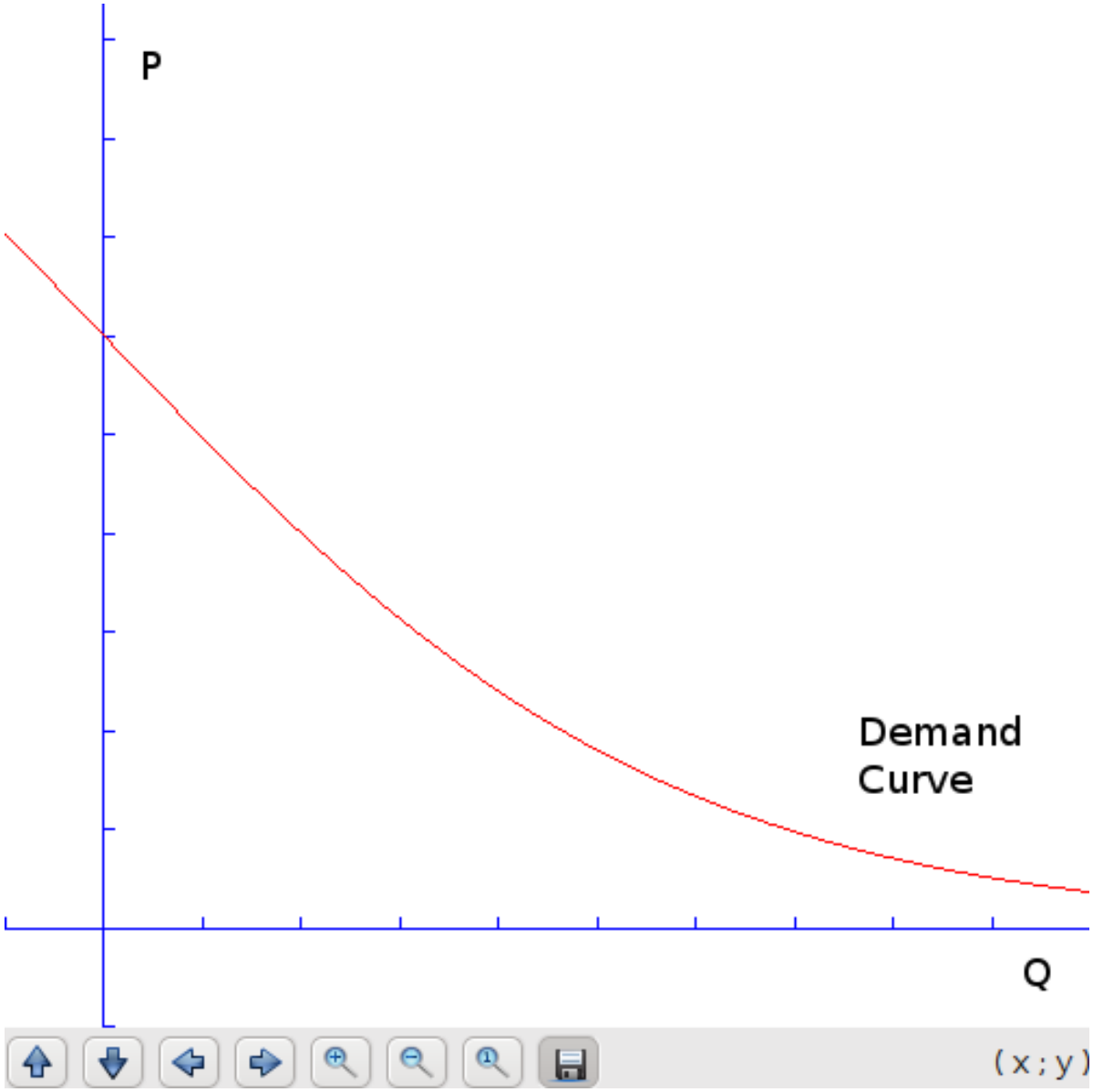
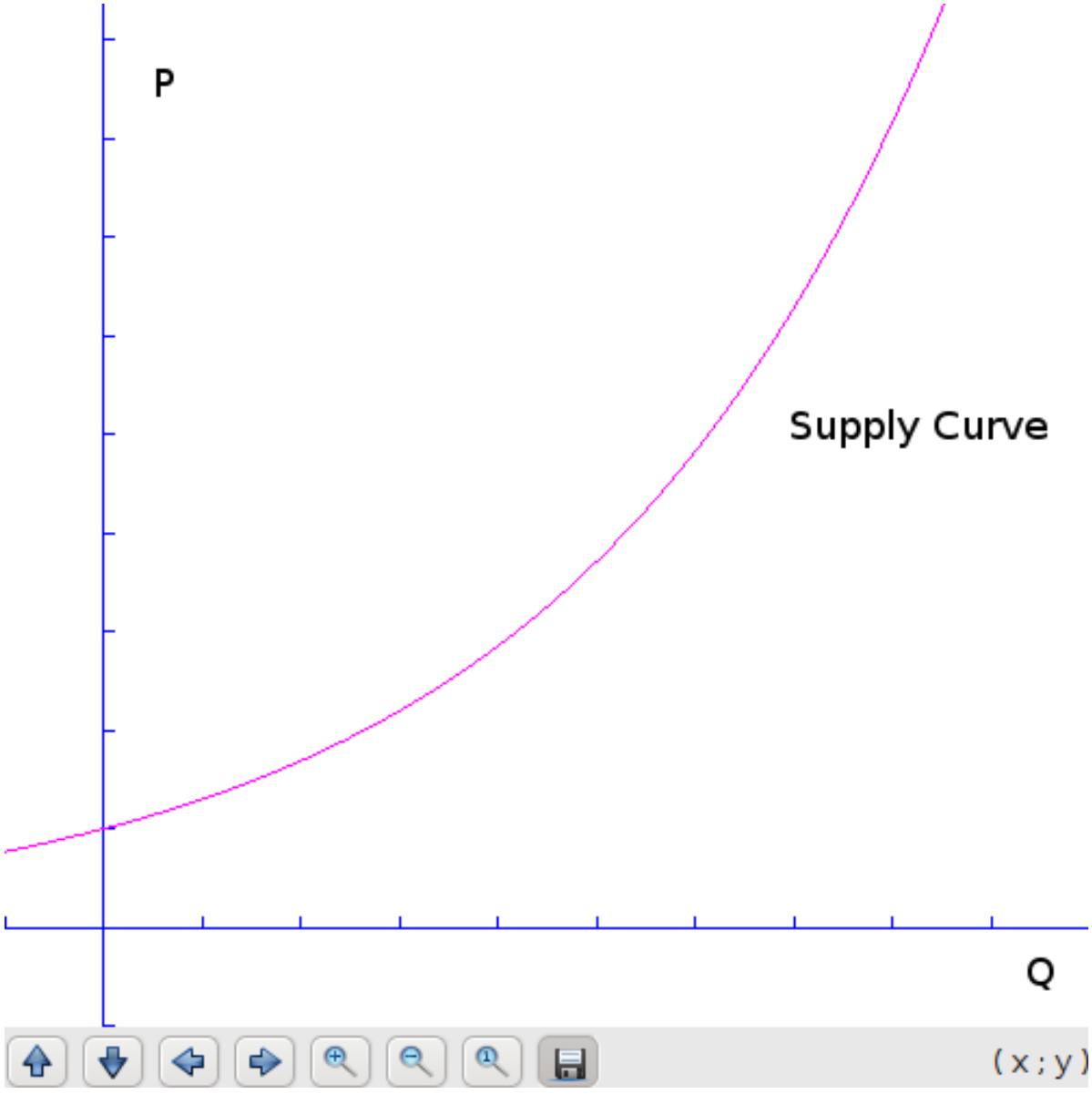
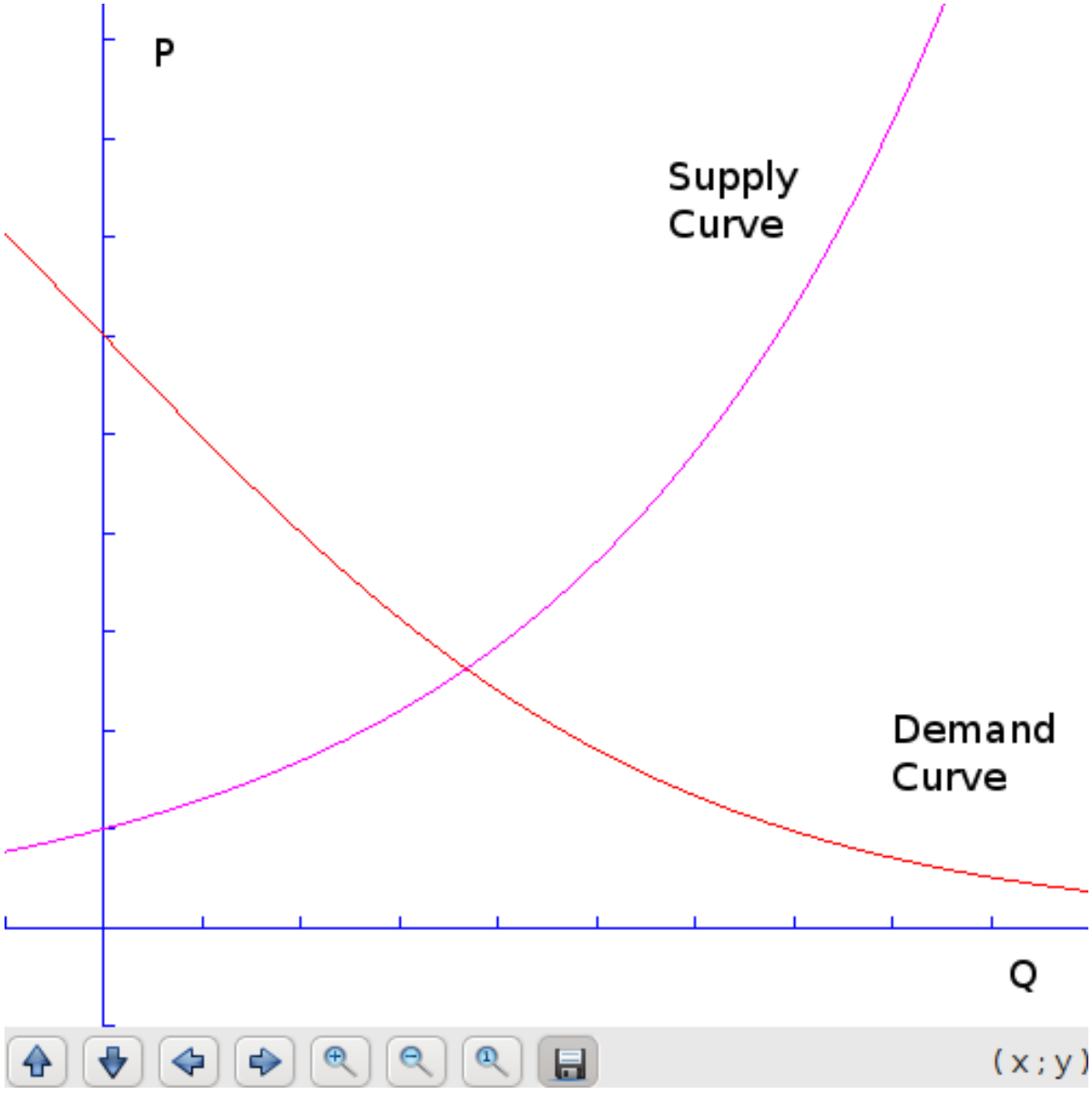
Demand Curve



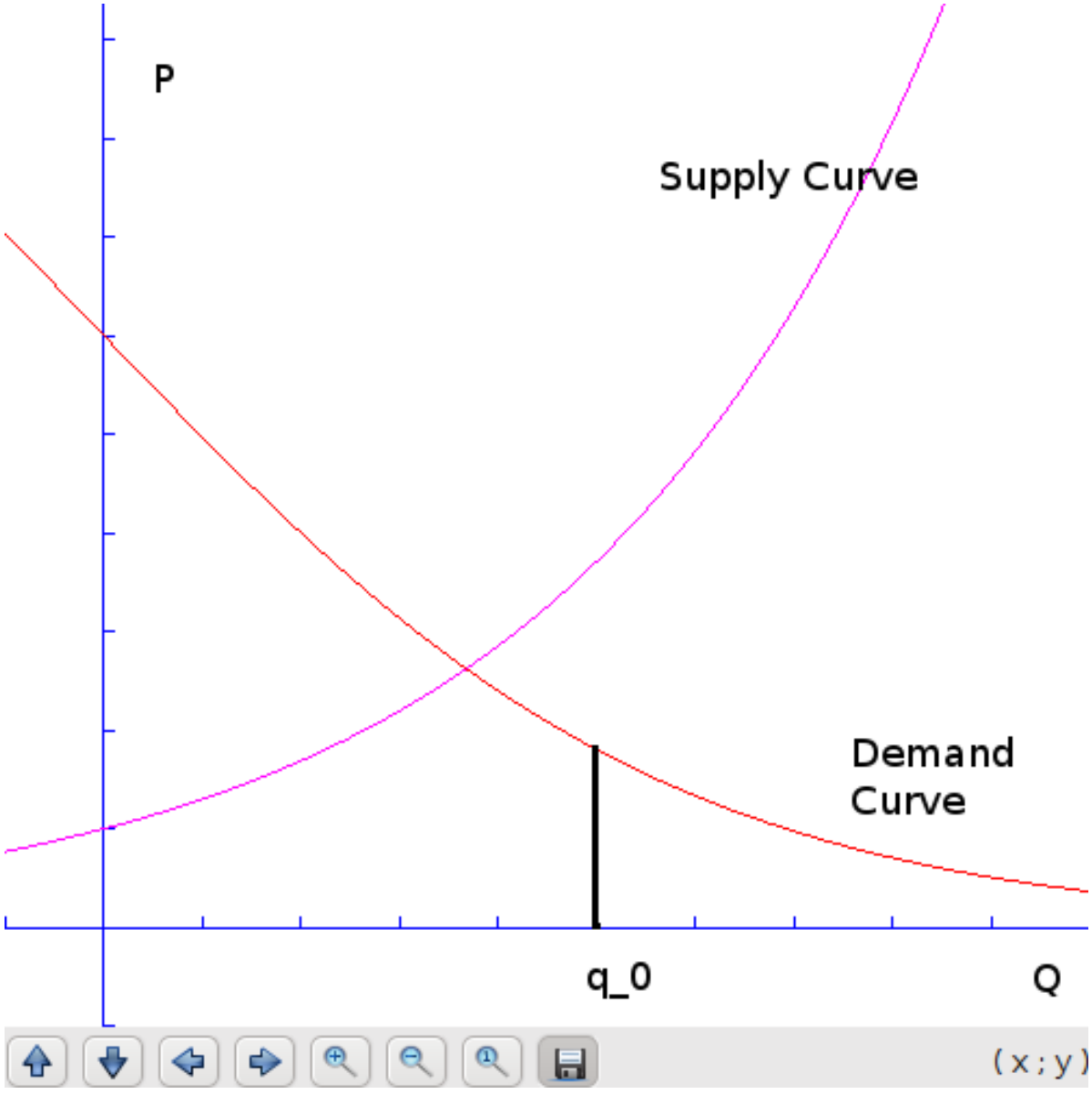
Supply Curve



Both Curves



The Big Picture



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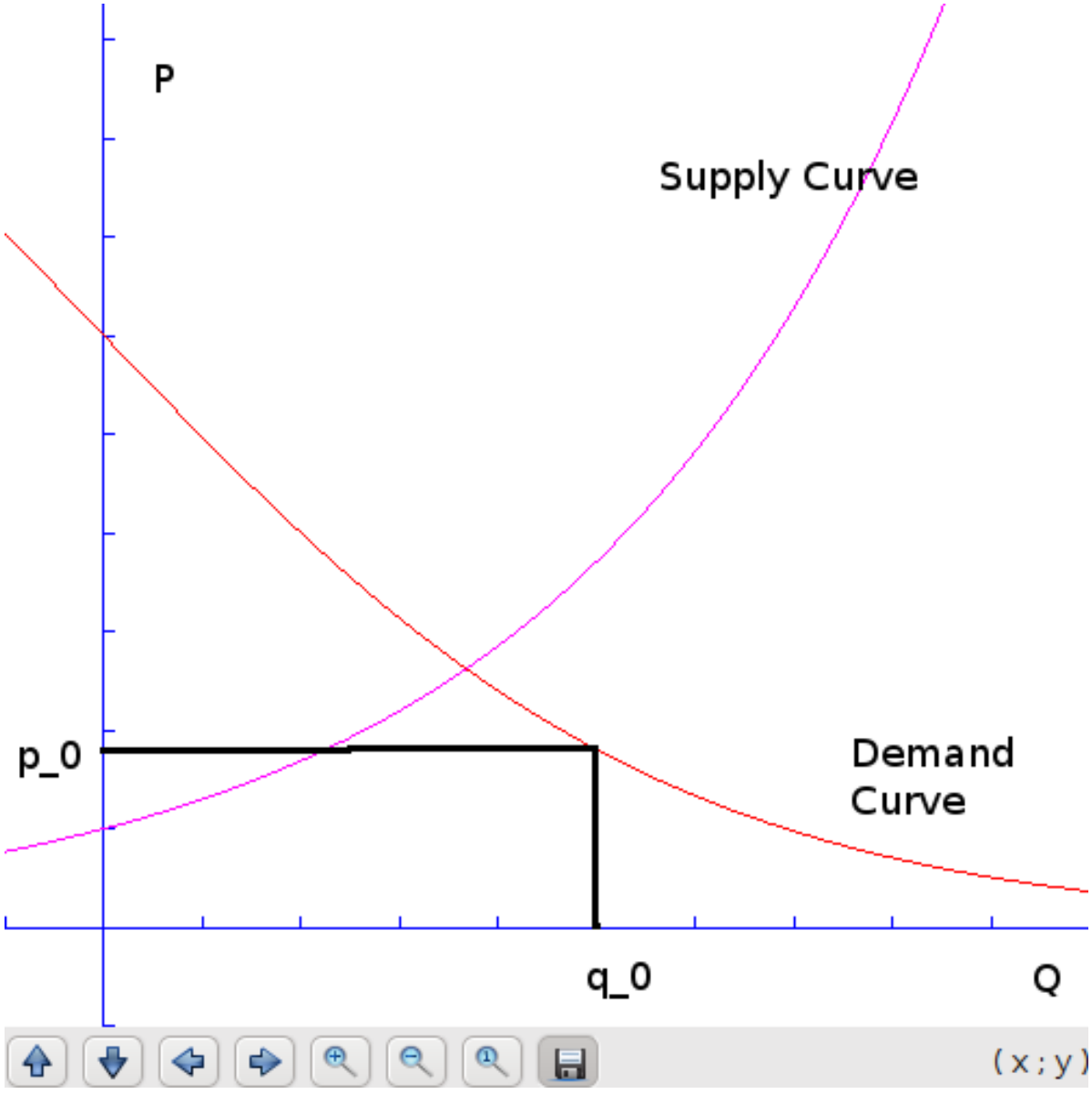

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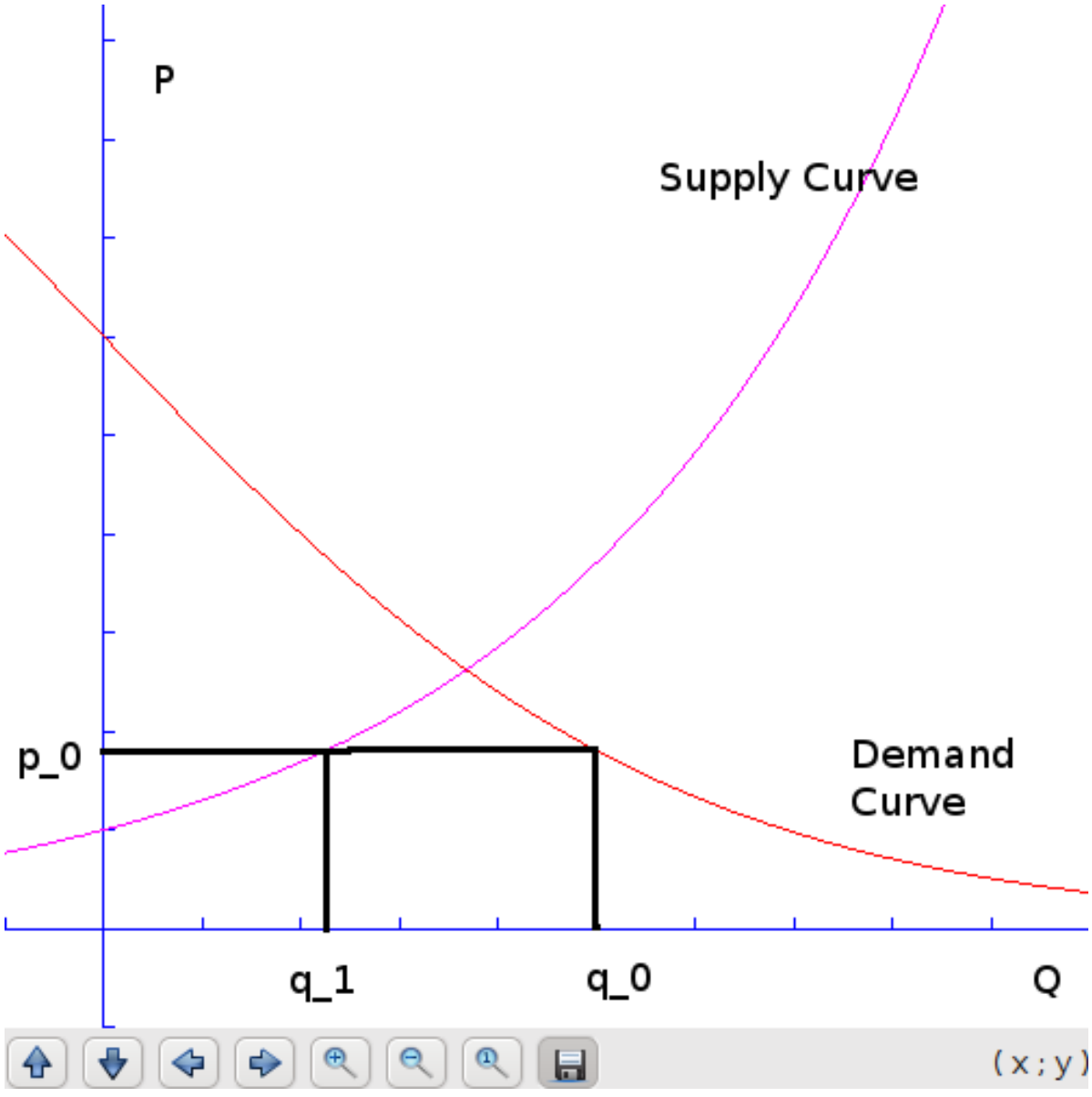

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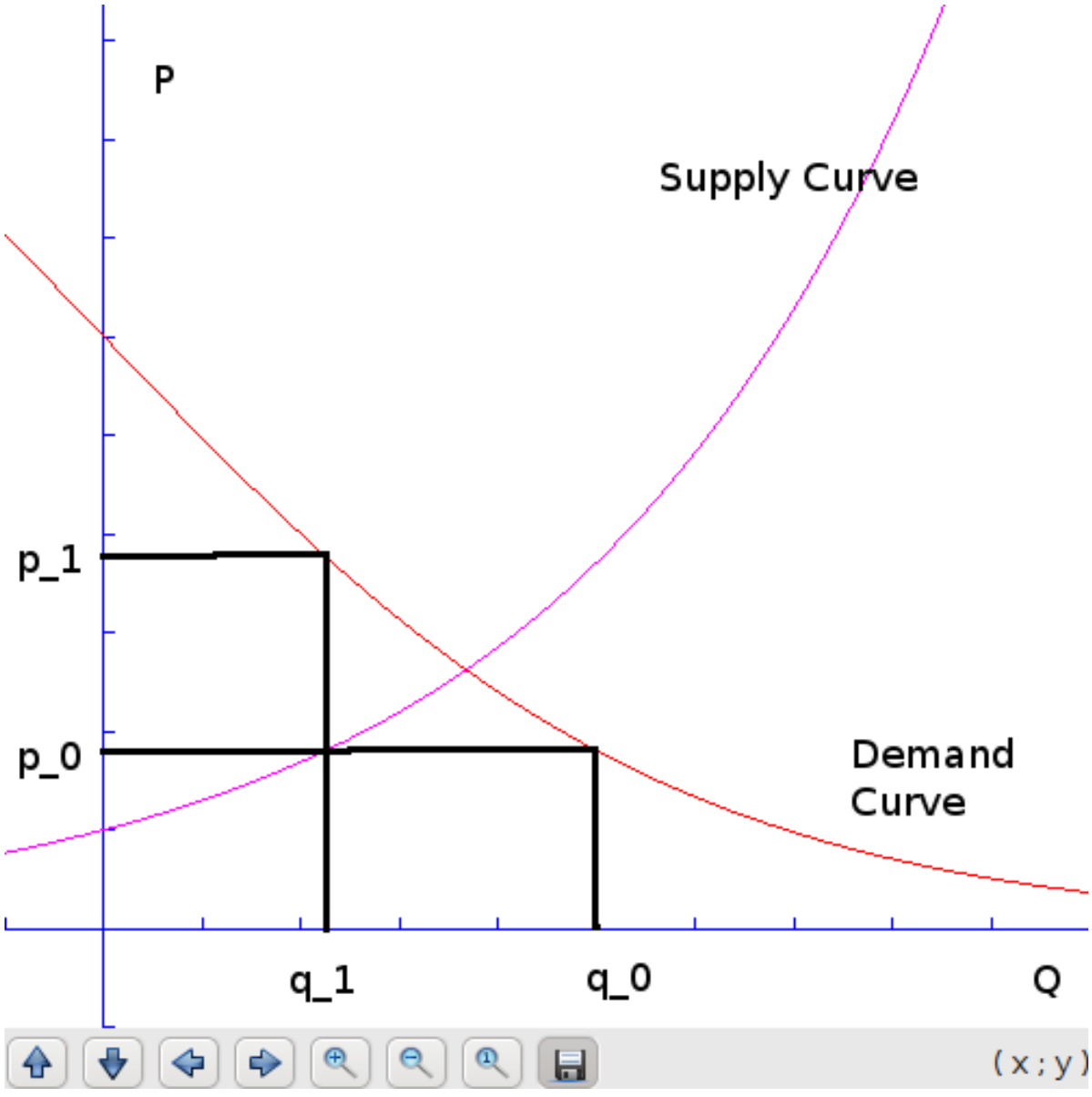

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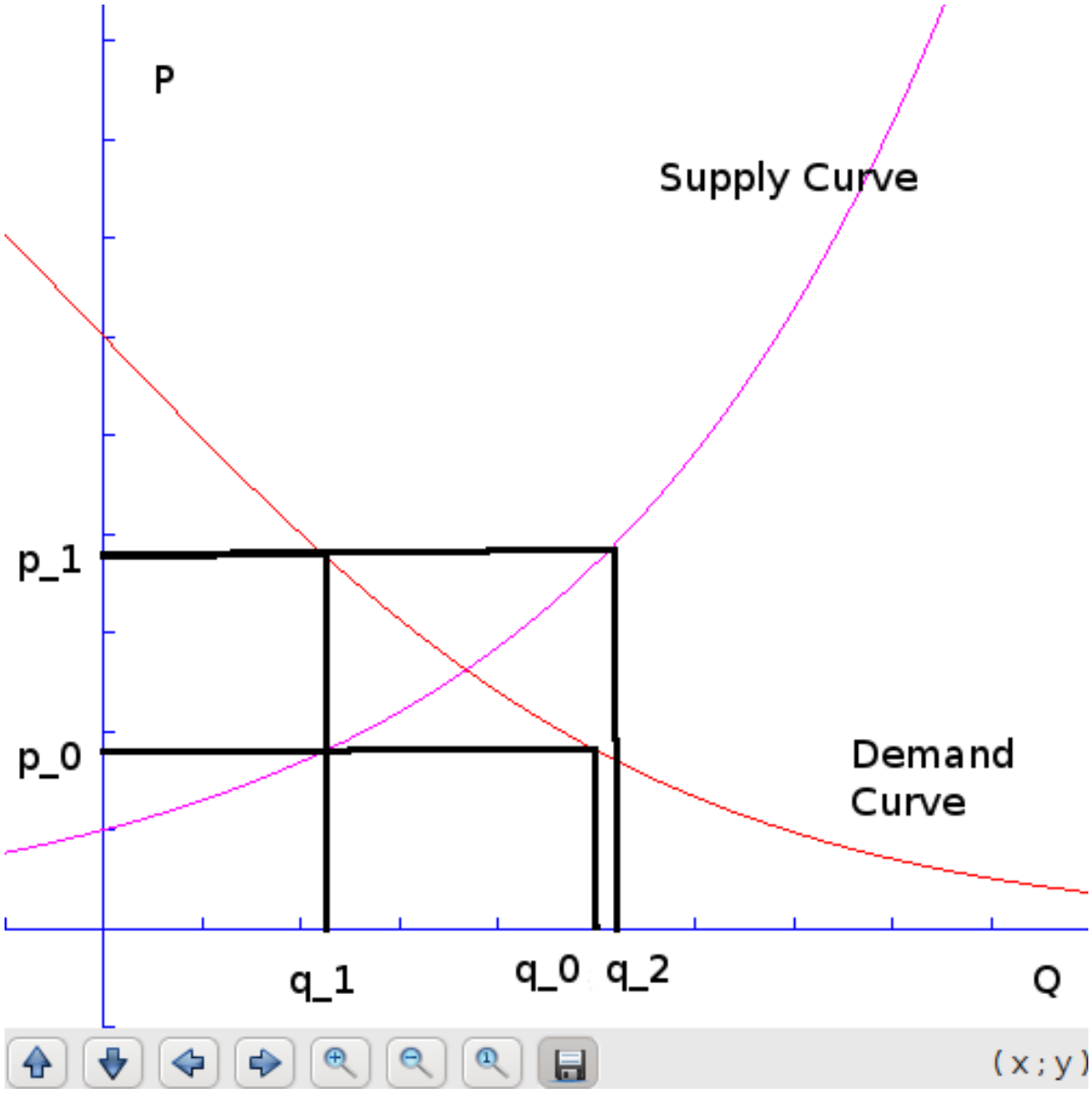

Problems with the Model

We don't actually know what the supply and demand curves are! We don't even really know that they exist! If they do, we can try to determine what they are with data.

Assuming the curves exist...

Suppose we have some data:

Year	Number of Computers	Price per computer
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Notice that it seems likely that the function is decreasing.
What does it tell us about the supply curve? Only that $(120, 500)$ is on the curve. We need more to determine the curve.

The Supply Curve

Year	Number of Computers	Price per computer
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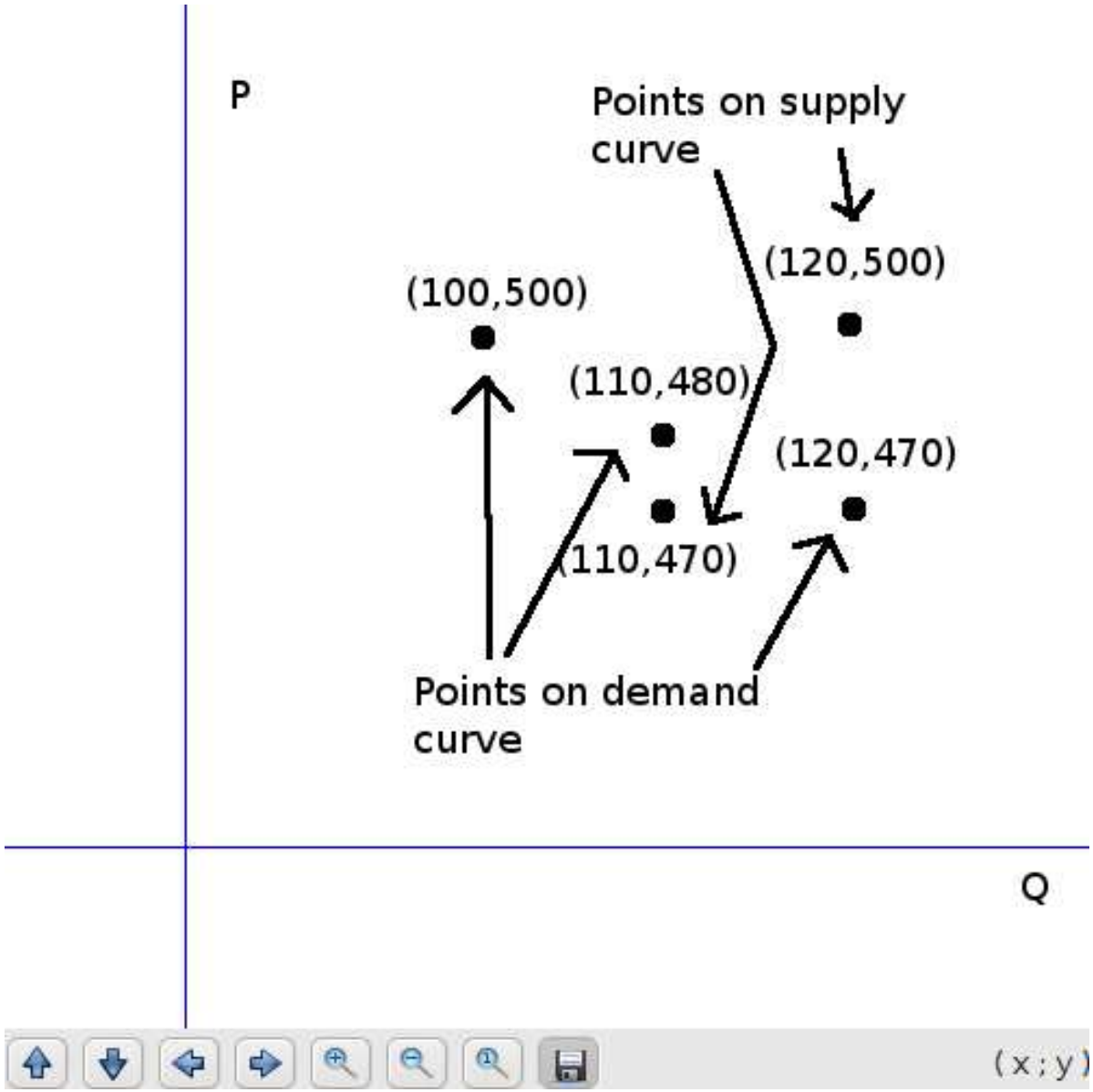
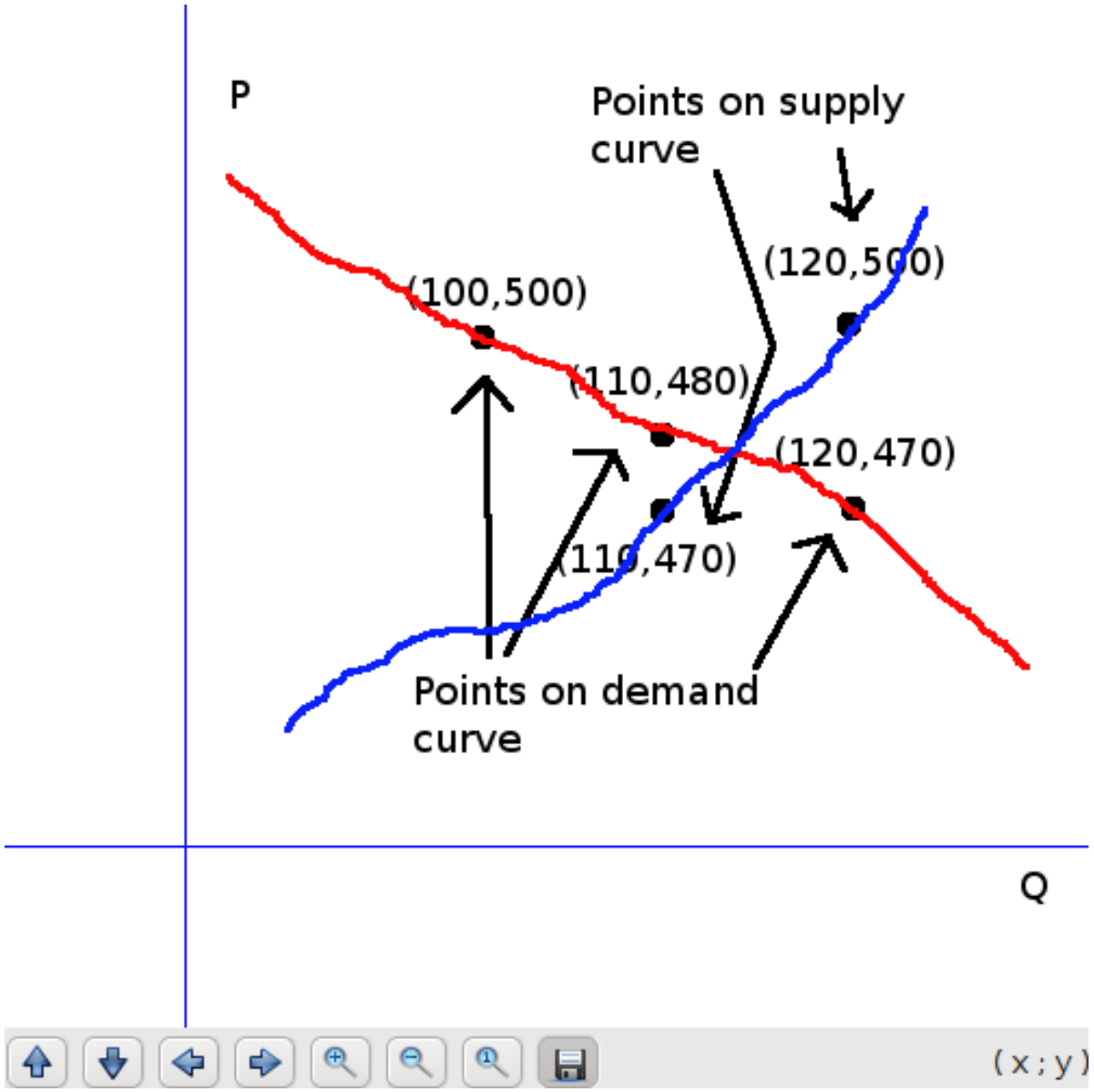
We now have $(120, 500)$ and $(110, 470)$.

How can we represent this graphically?



One Possible Picture



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Interpret, and analyze the model.

A little more of an example

Suppose we did some computations on data and determined some supply and demand functions:

$$D(Q) = 100 - 2Q$$
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We begin by producing 10 units. Now what?
$D(10) = 80$, so we sell each unit for \$80 a piece. Now what?
Last year we sold units for \$80 a piece, so we supply according to that rule: $P = S(Q) = (.3Q)^2$, where $P = 80$, so $80 = (.3Q)^2$, so Q is roughly 29.81, which we'll round to 30 units. (You can round at each stage and use the rounded number or keep the decimals. Think about what effect this will have).

Example Continued

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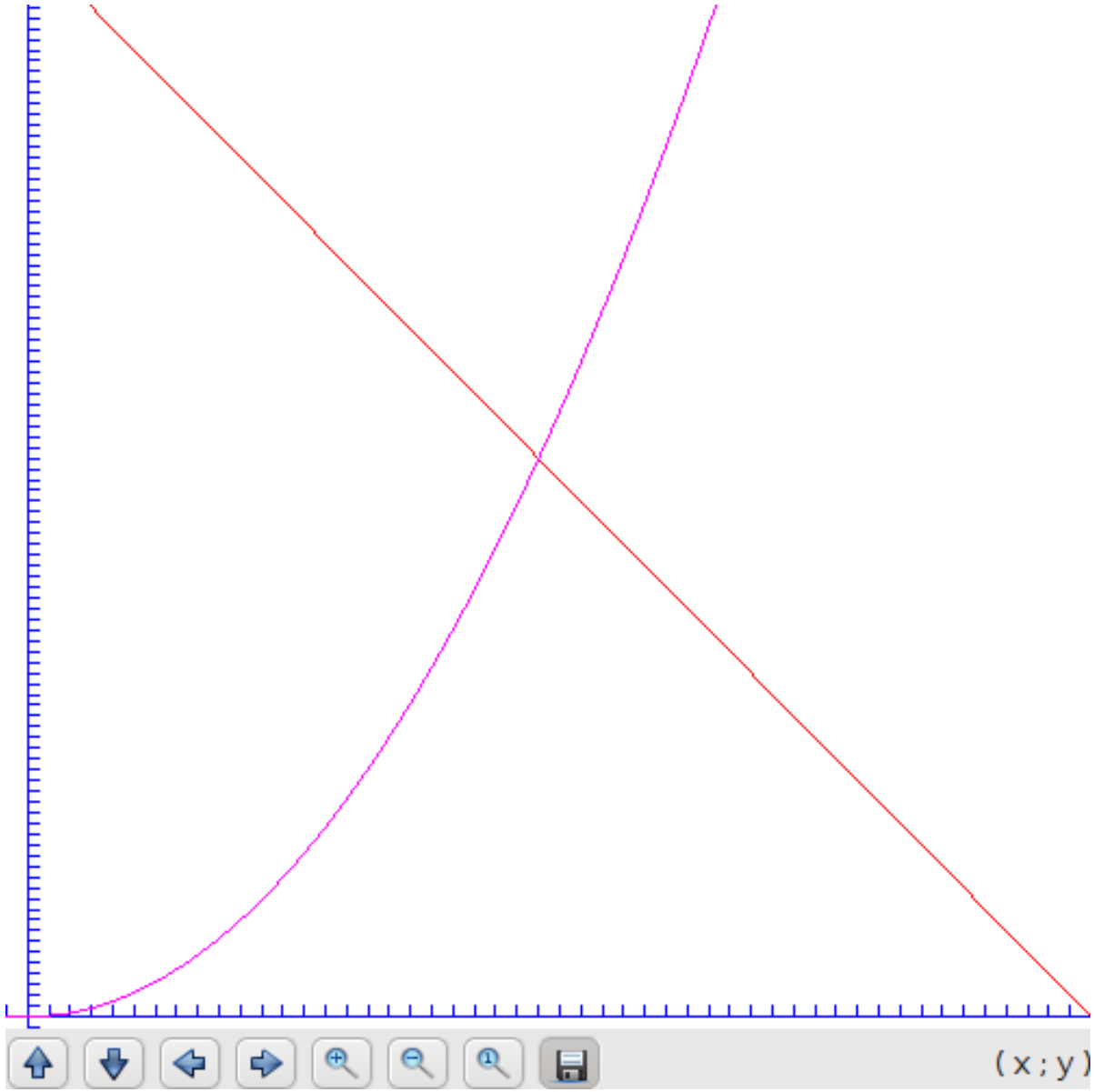
Now next year we will know that the price per unit last year was \$40 a piece, so we will produce according to $40 = P = S(Q) = (.3Q)^2$, so $Q = 21.08$, so we produce 21 units.

One Possible Picture



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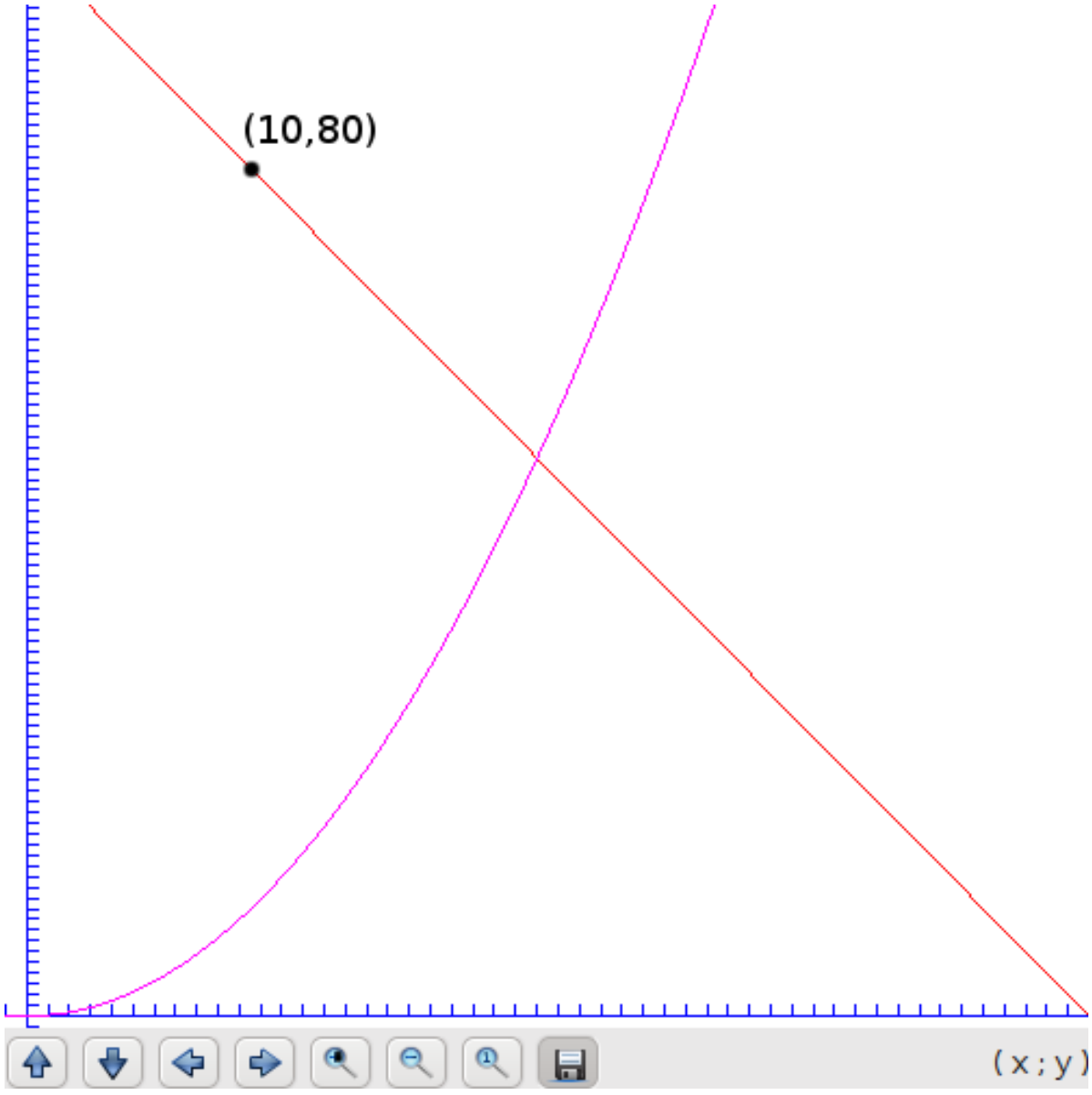

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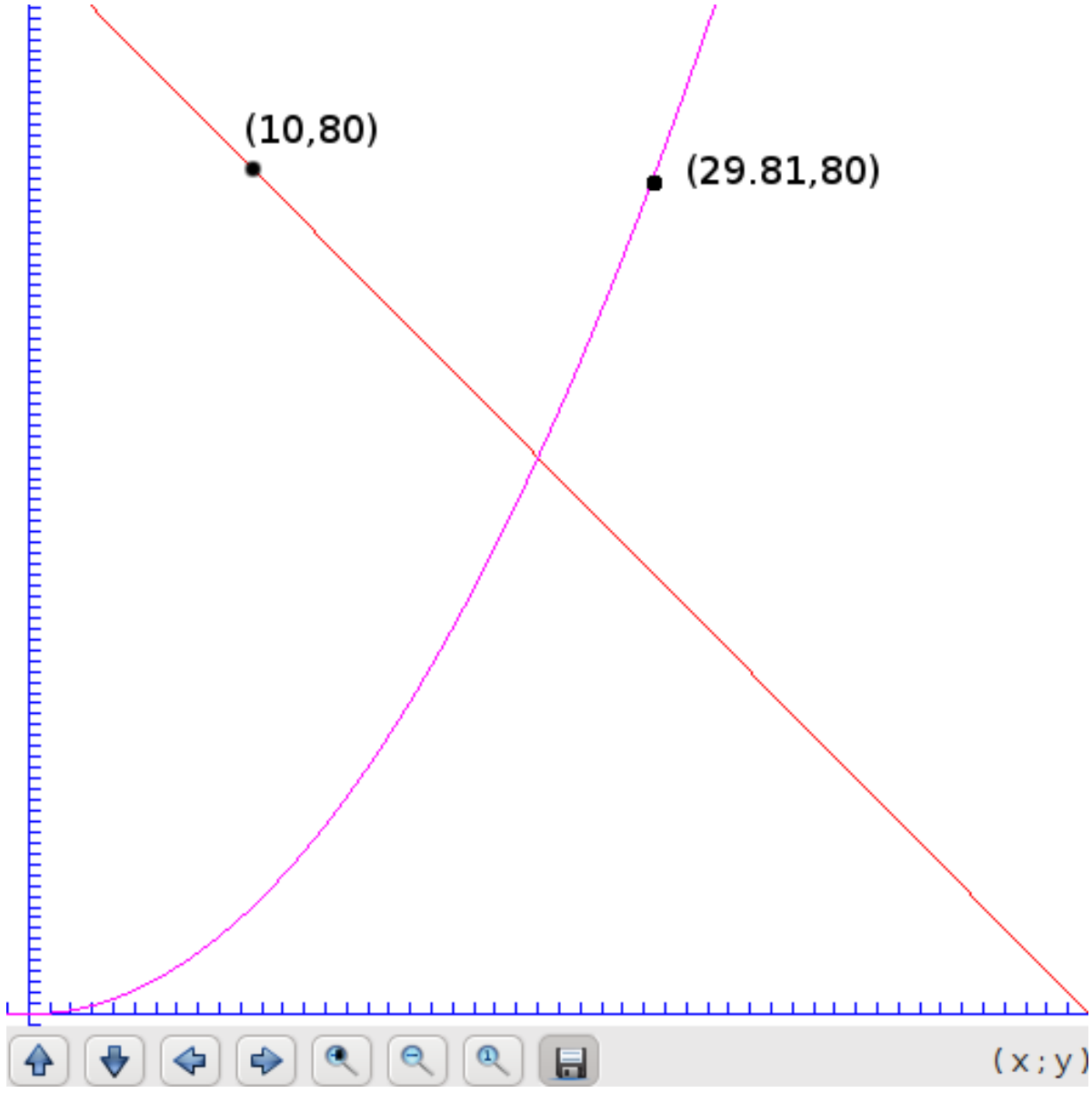

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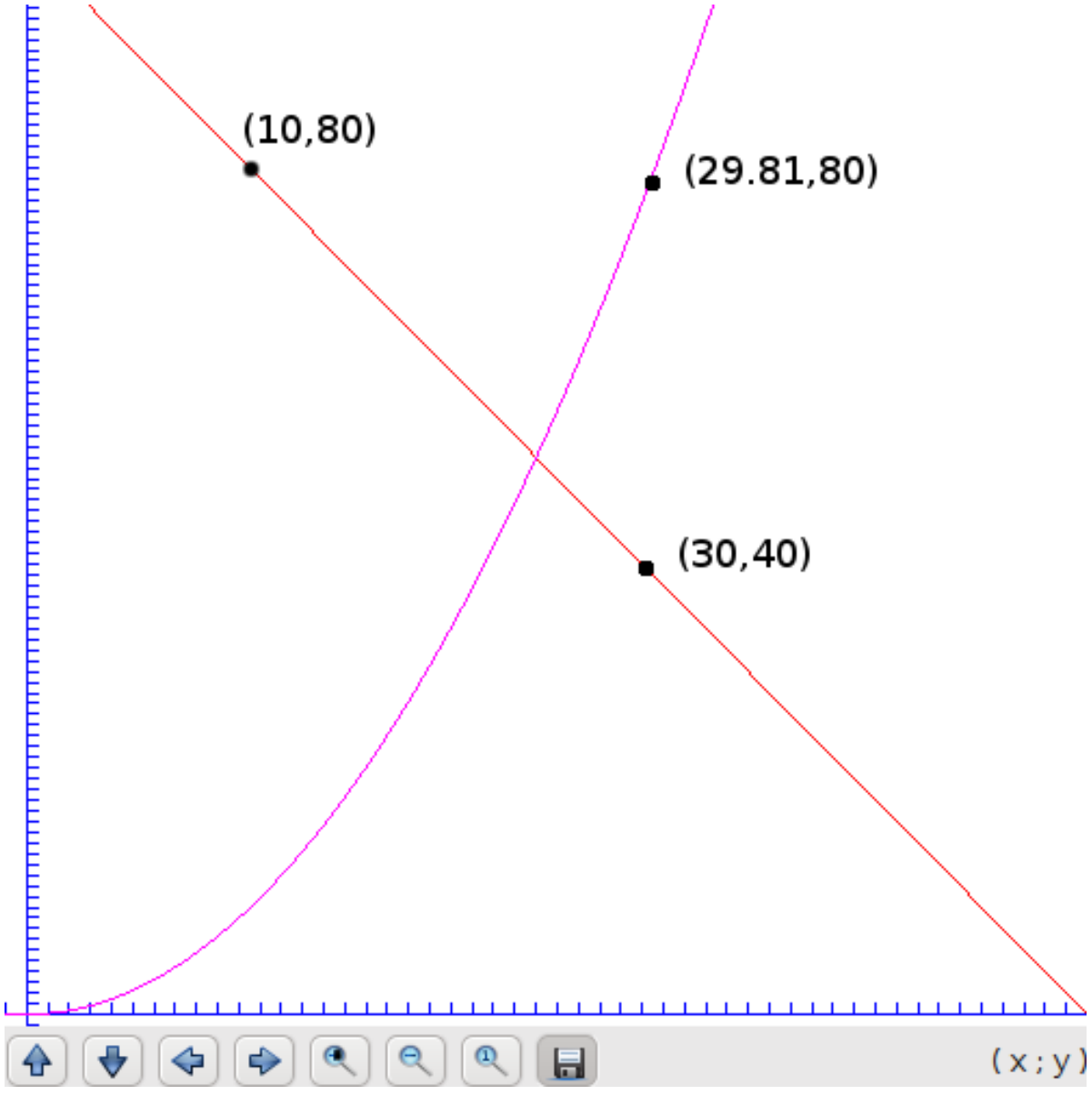

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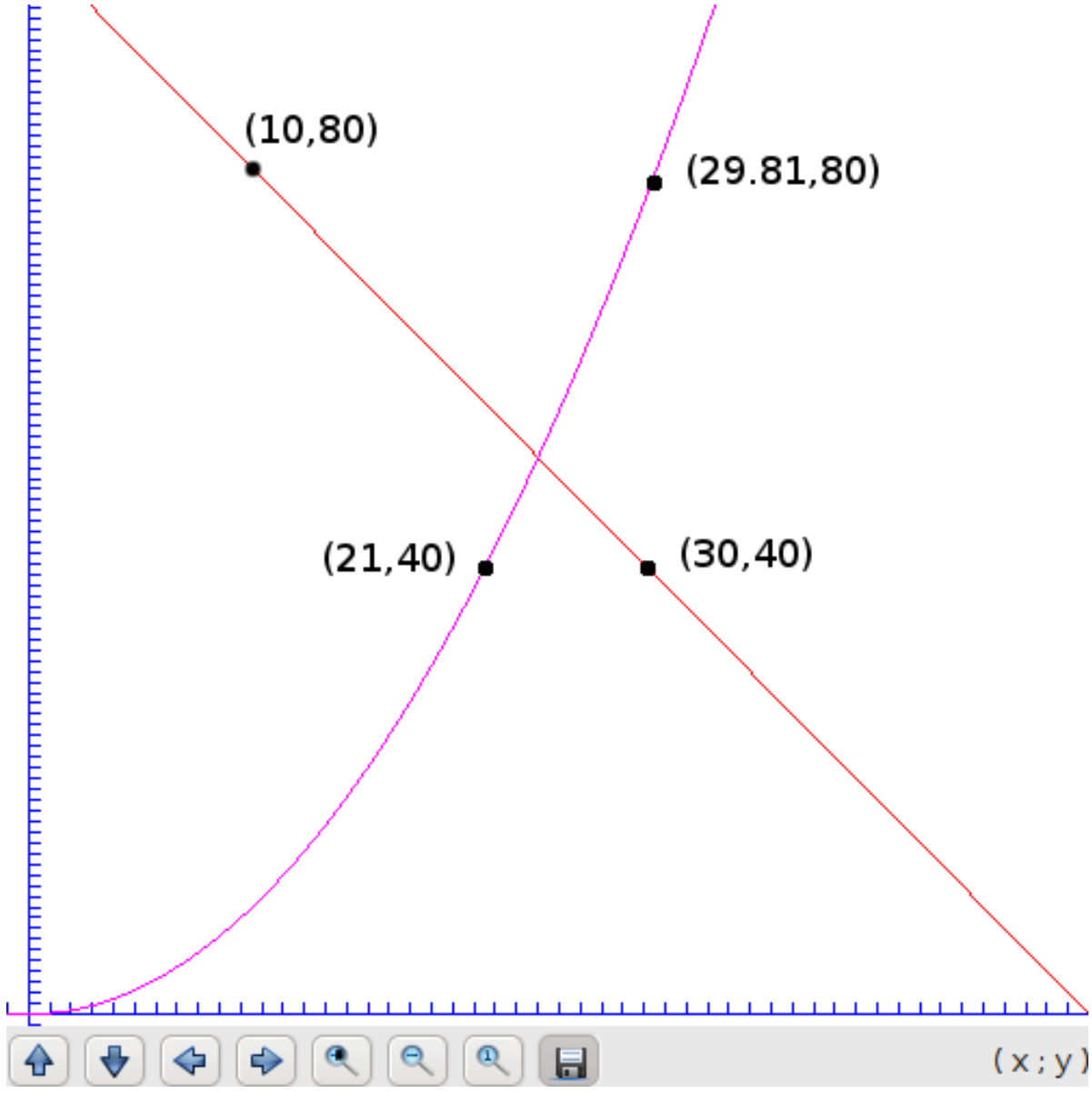

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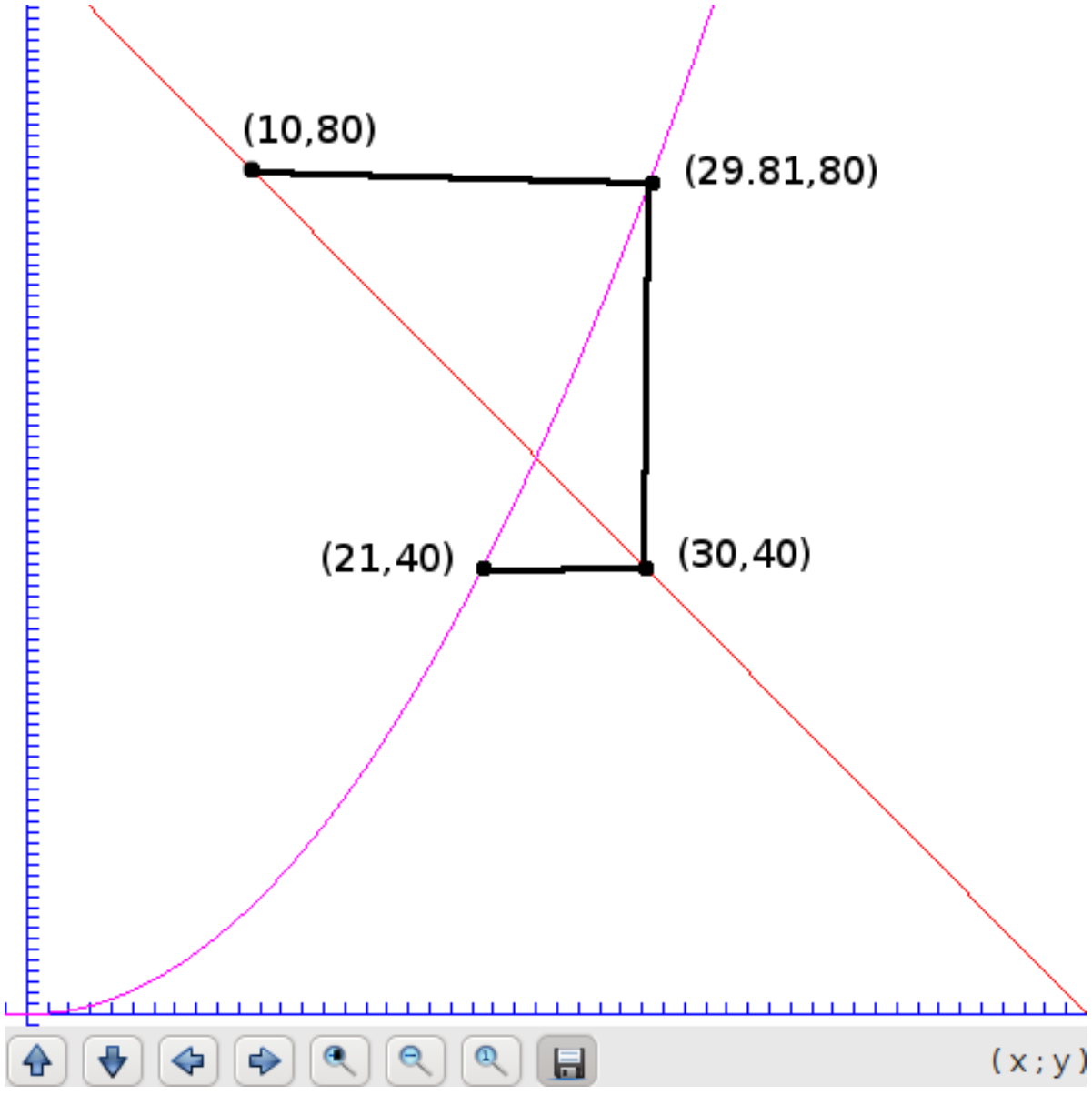

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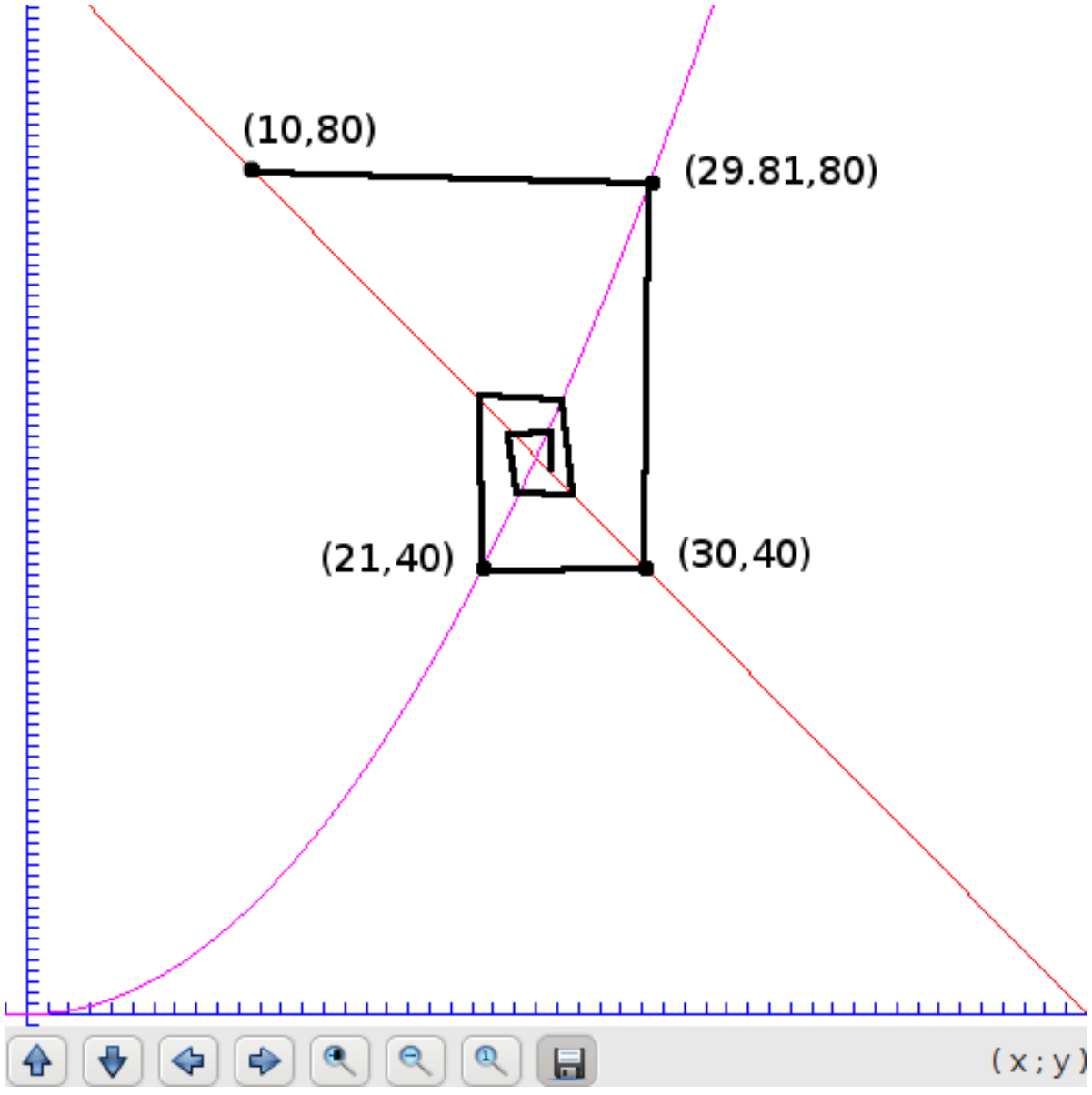

Questions?