

## Combining equations & geometry on the same graph (Tutorial B5)

[http://www.atomiclearning.com/k12/en/movie/86407/play\\_window?type=Tutorial&sid=2421](http://www.atomiclearning.com/k12/en/movie/86407/play_window?type=Tutorial&sid=2421)

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It's easy to see the relationship between equations and geometry in the same application. To demonstrate this, I'll

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insert the Graphs application into a new page by clicking Insert, and then choosing Graphs. Next, I'll graph the

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expression " $1/x$ " and press Enter. I'll adjust the view a bit by moving the pointer over the marks on the x-axis,

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and then I'll click and drag to change the scale of both x and y until I can see my graph a little better. Now, I'll

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take a tangent at an arbitrary point on the curve on the positive side of the x-axis by clicking on Geometry, then

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Points & Lines on the left side under the Document Tools, and then selecting Tangent from the menu. Then, I'll click

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anywhere on that curve to create the tangent. If your tangent line does not cross both the x and y axes, you can press

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Escape to move out of the Tangent tool and either resize or rescale your graph like we did before, or roll over

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the arrows on the tangent line and click and drag them out to make sure the tangent line crosses both axes. Now,

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I'll create a triangle by clicking on Geometry, then Shapes, and selecting Triangle. To create the triangle's first

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point, I'll click on the intersection of the tangent line and the y-axis. I'll create the second point by clicking

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on the origin. Finally, I'll create the third point by clicking on the intersection of the tangent line and the

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x-axis. Next, I'll measure the area of the triangle by clicking on Geometry, then Measurement, and then selecting

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Area. Now, I'll roll over a side of the triangle and click. Notice that the area of the triangle is exactly 2. If you

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can't see the area very well in the graph, just click and drag it to a better location. Now, I'll press Escape and

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roll over the tangent point on the curve, and click and drag to change the location of the tangent line. Notice

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that no matter how we resize the triangle under the tangent, the area remains consistent at 2.

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