

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

http://www.atomiclearning.com/k12/en/movie/85849/play_window?type=Tutorial&sid=2410

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

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I'll press the Home key, and then I'll choose the Graphs icon. Next I'll graph the expression $1/x$ and press enter.

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I'm going to adjust the view a bit by using the Touchpad to move the pointer over the x-axis until it's highlighted,

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and then I'll use the Grab tool by pressing and holding the Click key until I get the grab cursor. Now, I'll use

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the arrow keys on the Touchpad to change the scale of both x and y until I can see the graph a little better. You

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can also press Ctrl and then the Click key to activate the Grab tool. To get out of the Grab tool, I'll press

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the Click key again. Now, I'll take a tangent at an arbitrary point of the curve on the positive side of the x-axis by

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pressing Menu, then Geometry, Points and Lines, followed by Tangent. Then, I'll click anywhere on that curve to

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create the tangent. If your tangent point doesn't cross both the x and y axes, just resize or rescale your graph

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by pressing the Escape key, and then changing the scale like we did before to make sure the tangent line crosses

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both axes. You can also click and drag the arrows at the ends of the tangent line to extend it beyond the axes. Now,

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I'll create a triangle by pressing Menu, then Geometry, Shapes, and then selecting Triangle. To create the triangle's

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first point, I'll roll over the intersection of the tangent line and the y-axis, and then press the Click key. I'll

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create the second point by rolling over, and clicking on the origin. Finally, I'll create the third point by rolling

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over and clicking on the intersection of the tangent line and the x-axis. Next, I'll measure the area of the triangle

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by pressing Menu, and then choosing Geometry, Measurement, followed by Area. Now, I'll roll over a side of the triangle

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and click. Notice that the area of the triangle is exactly 2. Now, I'll press Escape, then roll over the tangent point

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on the curve. I'll press and hold the Click key in the center of the Touchpad to grab that point, and then use

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the arrows on the Touchpad to drag it and change the location of the tangent line. Notice no matter how we resize the

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triangle under the tangent, the area remains constant at 2.

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