

# Homefun 8

## Vive la Indifference!

MATH 150  
10 points

**Directions:** Work in groups of 2 to 4 in class and then finish outside of class as necessary. Each group should submit **ONE** solution page for the group. (Be sure everyone's name is on it!)

In economics, the Cobb-Douglas utility function<sup>1</sup> measures a consumer's satisfaction with various goods. (E.g., how happy would I be with three kittens and one ice-cream cone?) An **indifference curve** is a curve that shows the different goods that all give the same level of satisfaction (e.g., I'd be just as happy with three kittens and one ice-cream cone as I would with two kittens and two ice-cream cones.)

One Cobb-Douglas indifference curve has the form  $x^{0.35}y^{0.65} = 12$ . Suppose here that  $x$  represents time spent reading and  $y$  represents time spent playing video games (both in hours).

1. Use **implicit differentiation** to find  $\frac{dy}{dx}$  for this indifference curve.
2. What does  $\frac{dy}{dx}$  represent?

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<sup>1</sup>[http://www.econport.org/econport/request?page=man\\_consumer\\_demand](http://www.econport.org/econport/request?page=man_consumer_demand)