

# MATH CHALLENGE

of the ECU Math Club

## MC2

Find the exact value of  $a > 0$  that maximizes the area between the graph of

$$f(x) = x^a(1 - x^a)$$

and the  $x$ -axis from  $x = 0$  to  $x = 1$ . Use some test to verify that you actually have the maximum area.

**Submissions due:** 12:00pm, March 29, 2019

Submit solutions to Dr. Sit as hard copy to Wallace 410 or as email to [Atilla.Sit@eku.edu](mailto:Atilla.Sit@eku.edu) (PDF only).

Solutions must include all supporting work.

Top solvers will be recognized.