Name: _____ CWID: _____

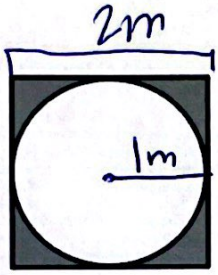
Email: Solution

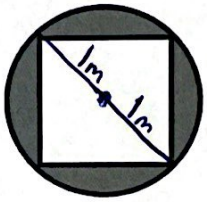
Math Question of the Week

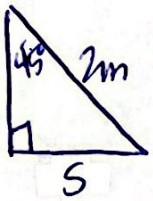
Week 5

Please complete the problem and show your work on THIS paper. You may submit your solution by Friday 9/30 at 5 pm in the MATH OFFICE (BIN 306) or to math@tamuc.edu

The radius of both circles shown is 1 meter. One diagram shows a square circumscribed and the other shows a square inscribed on identical circles. Find the sum of the shaded areas of these two figures.







$\frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$

$s = \sqrt{2}\,m$

Shaded region =

$A_{square} - A_{circle}$

$s^2 - \pi r^2$

$(2m)^2 - \pi(1m)^2$

$4m^2 - \pi m^2$

Shaded region =

$A_{circle} - A_{square}$

$\pi r^2 - s^2$

$\pi(1m)^2 - (\sqrt{2}m)^2$

$\pi m^2 - 2m^2$

Total Shaded Region =

$4m^2 - \pi m^2 + \pi m^2 - 2m^2 =$

$4m^2 - 2m^2 = \boxed{2m^2}$