

# 8.3 Day 1

Thursday, March 19, 2015 7:01 AM

## Opener with Areas

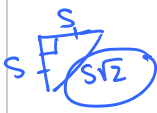
Name \_\_\_\_\_

For each, find the formula for the area of the figure in terms of x.

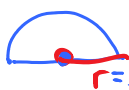
1. A square with sides of length x.

$A = s^2$      $S = x$      $A = x^2$


2. A square with diagonals of length x.

  $d = x$      $S\sqrt{2} = x$      $S = \frac{x}{\sqrt{2}}$      $A = \left(\frac{x}{\sqrt{2}}\right)^2 = \frac{x^2}{2}$


3. A semi-circle with radius of x.

  $A = \frac{1}{2} \pi x^2$

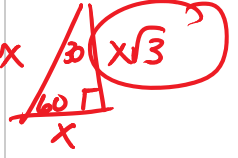
4. A semi-circle with diameter of x.

  $r = \frac{1}{2}d = \frac{1}{2}x$      $A = \frac{1}{2} \pi \left(\frac{1}{2}x\right)^2 = \frac{x^2}{8} \pi$


5. An equilateral triangle with sides of length x.

  $A = \frac{1}{2}bh$   
 $= \frac{1}{2}x \left(\frac{\sqrt{3}}{2}x\right) = \frac{x^2\sqrt{3}}{4}$

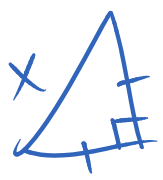
$h = \frac{1}{2}x\sqrt{3} = \frac{\sqrt{3}}{2}x$

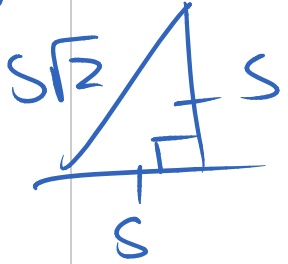
  $2x$      $x\sqrt{3}$

6. An isosceles right triangle with legs of length x.

  $A = \frac{1}{2}x^2$

7. An isosceles right triangle with hypotenuse of length x.

  $S\sqrt{2} = x$      $S = \frac{x}{\sqrt{2}}$      $\frac{1}{2} \left(\frac{x}{\sqrt{2}}\right) \left(\frac{x}{\sqrt{2}}\right) = \frac{x^2}{4}$

  $S$      $S$