

This is the ultimate composite figure. See if you can find it's area in simplest radical form!

Show work for each part of the figure for partial credit! (Hint: Heron's formula will be necessary.)

1. Total: $1056 + 960 + 864\sqrt{3} + 144\sqrt{3} + 3\sqrt{4199} + 16\sqrt{61318} + 3\sqrt{4879}$
 Total: $2016 + 1008\sqrt{3} + 3\sqrt{4199} + 16\sqrt{61318} + 3\sqrt{4879}$
 $22(48) = 1056 \text{ cm}^2$
 $20(48) = 960 \text{ cm}^2$
 $\approx 8127.85 \text{ cm}^2$

$s = \frac{36+22+20}{2} = 39$
 $\sqrt{(39)(3)(19)(17)} = 3\sqrt{4199} \approx 194.40$

Heron's
 $s = \frac{40+22+24}{2} = 86$
 $\sqrt{86(86-22)(86-24)(86-40)} = \sqrt{86(64)(62)(46)}$
 $\sqrt{16(43)(31)(23)} = 4\sqrt{3(72)} = 288\sqrt{3}$
 $16\sqrt{61318} \approx 3961.995$

Hexagon:
 $\frac{12\sqrt{3}(144)}{2} = 864\sqrt{3}$
 $s = \frac{38+24+20}{2} = 41$
 $\sqrt{41(3)(17)(21)} = 3\sqrt{4879} \approx 209.55$

2. Find the area of the shaded region. The radius of the large circle is 10 m. Round answer to the nearest hundredth.

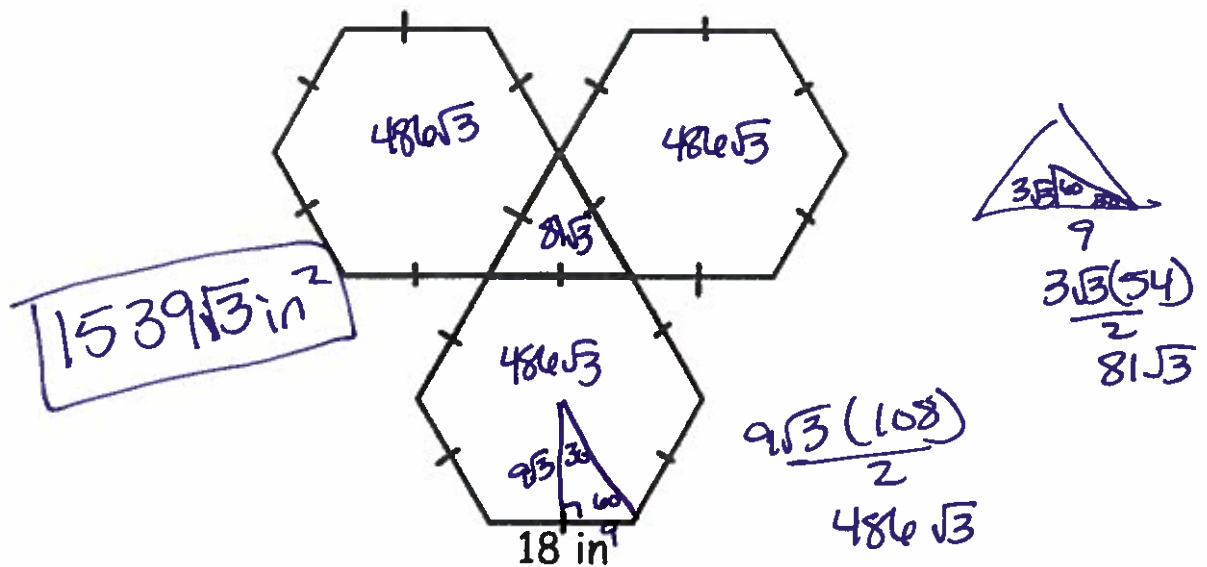
Heptagon - inner circle
 $273.64 - \pi(9.0096 \dots)$
 $273.64 - 255.0718$
 18.62 m^2

7 sides Heptagon
 Heptagon - inner circle

$(6525.7 = \frac{y}{10})$
 $y = 9.00968817$
 $9.009688 \dots (657437)$
 Heptagon Area = 273.64

$\sin 25.7 = \frac{y}{10}$
 $x = 4.3388 \dots$
 $P = 657437 \dots$

3. Find the area of the following figure. Answer should be simplest radical form.



4. Find the area of the following figure. Be sure to leave in simplest radical form!

