Honors Geometry
Practice

$A_{sector} = \frac{m\widehat{Arc}}{360} \cdot \pi r^2$, $A_{\odot} = \pi r^2$

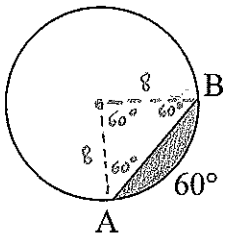
$A_{\triangle} = \frac{s^2\sqrt{3}}{4}$, $A_{reg\ poly} = \frac{1}{2}ap$

DATE: Key

Remember units^2 !

Find the area of each shaded region. All polygons are regular.

1.



AB = 8

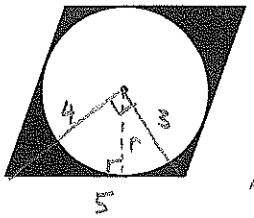
Area of segment of circle?

$A_{segment} = A_{sector} - A_{\triangle}$

$= \frac{60}{360} \cdot \pi(8)^2 - \frac{(8)^2\sqrt{3}}{4}$

$= \frac{32}{3}\pi - 16\sqrt{3}$

2.



rhombus
$d_1 = 6$
$d_2 = 8$

$\frac{1}{2}(4)(3) = \frac{1}{2}(5)(r)$

$6 = \frac{1}{2}(5)r$

$\frac{12}{5} = \frac{5r}{5}$

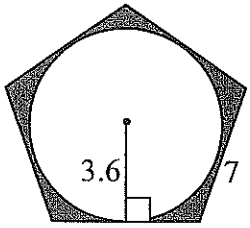
$\frac{12}{5} = r$

$A_{SHADED} = A_{RH} - A_{\odot}$

$= \frac{1}{2}(6)(8) - \pi\left(\frac{12}{5}\right)^2$

$= 24 - \frac{144}{25}\pi$

3.



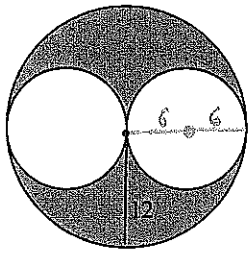
$P = 5(7) = 35$

$A_{SHADED} = A_{reg.pent} - A_{\odot}$

$= \frac{1}{2}(3.6)(35) - \pi(3.6)^2$

$= 63 - 12.96\pi$

4.



$A_{SHADED} = A_{BIG\ \odot} - 2A_{SMALL\ \odot s}$

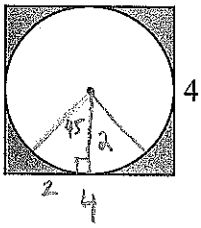
$= \pi(12)^2 - 2(\pi(6)^2)$

$= 144\pi - 2(36\pi)$

$= 144\pi - 72\pi$

$= 72\pi$

5.

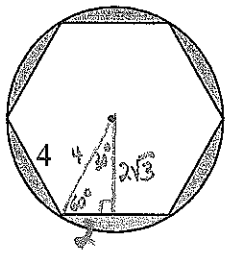


$A_{SHADED} = A_{SQ} - A_{\odot}$

$= (4)^2 - \pi(2)^2$

$= 16 - 4\pi$

6.



$P = 6(4)$
$= 24$

$A_{SHADED} = A_{\odot} - A_{reg\ poly}$

$= \pi(4)^2 - \frac{1}{2}(2\sqrt{3}) \cdot 24$

$= 16\pi - 24\sqrt{3}$

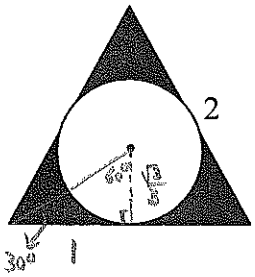
7.

$30 - 60 - 90$

$x \quad x\sqrt{3} \quad 2x$

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

$\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3} = x$



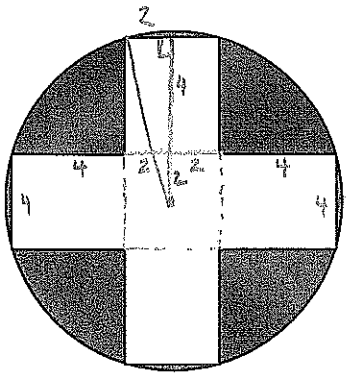
$A_{SHADED} = A_{\triangle} - A_{\odot}$

$= \frac{(2)^2\sqrt{3}}{4} - \pi\left(\frac{\sqrt{3}}{3}\right)^2$

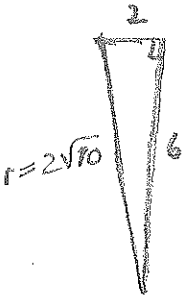
$= \frac{4\sqrt{3}}{4} - \frac{3\pi}{9}$

$= \sqrt{3} - \frac{\pi}{3}$

8.



All 12 sides are 4 units
All angles are right



$2^2 + 6^2 = c^2$

$\sqrt{40} = \sqrt{c^2}$

$\sqrt{40} = c$

$\sqrt{4}\sqrt{10} = c$

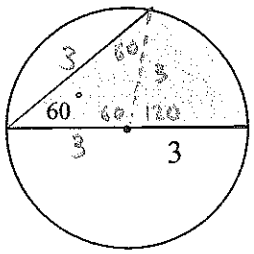
$2\sqrt{10} = c$

$A_{SHADED} = A_{\odot} - A_{\square}$

$= \pi(2\sqrt{10})^2 - \overset{\text{SQUARES}}{5}(4)^2$

$= 40\pi - 80$

9.



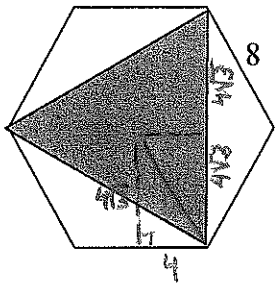
$A_{SHADED} = A_{\triangle} + A_{sector}$

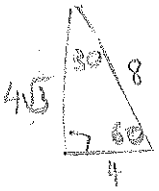
$= \frac{(3)^2\sqrt{3}}{4} + \frac{120}{360} \cdot \pi(3)^2$

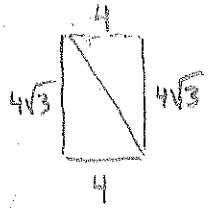
$= \frac{9\sqrt{3}}{4} + \frac{1}{3}\pi(9)$

$= \frac{9\sqrt{3}}{4} + 3\pi$

10.







$A_{SHADED} = \frac{(8\sqrt{3})^2\sqrt{3}}{4}$

$= \frac{192\sqrt{3}}{4}$

$= 48\sqrt{3}$

ONE SIDE OF SHADED $\triangle$

$= 8\sqrt{3}$