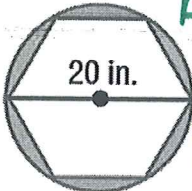
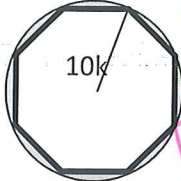


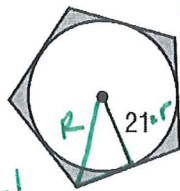
Key

ACC Geometric Probability Homework #1

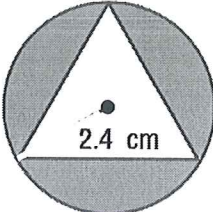
Find the probability that a point chosen at random lies in the shaded region. Round your answers to the nearest tenth.

1.  $A_S = 10^2\pi - 6 \cdot \frac{1}{2} 10^2 \sin 60$
 $A_S = 54.4 \text{ in}^2$
 $A_T = 100\pi \text{ in}^2$
 $P = .173$
 $P = 17.3\%$

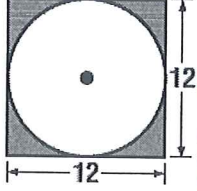
 $A_S = \pi 10^2 - 8 \cdot \frac{1}{2} 10^2 \sin 45$
 $A_S = 31.3 \text{ km}^2$
 $A_T = 100\pi \text{ km}^2$
 $P = .0996$
 $P = 10\%$

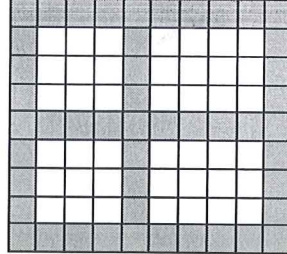
3.  $A_S = 5 \cdot \frac{1}{2} (25.96)^2 \sin 72 - \pi 21^2$
 $A_S = 216.90^2$
 $A_T = 5 \cdot \frac{1}{2} (25.96)^2 \sin 72$
 $A_T = 1602.34$
 $P = .135$ $P = 13.5\%$

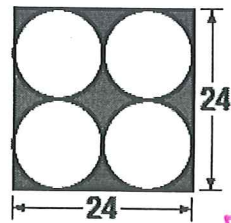
$R = 21$
 $\sin 54 = \frac{21}{R}$
 $R = 25.96$

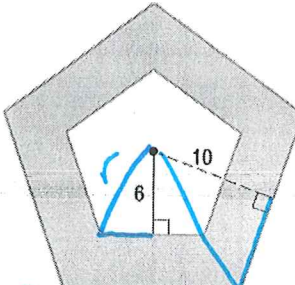
4.  $A_S = \pi (1.4)^2 - 3 \cdot \frac{1}{2} (1.4)^2 \sin 60$
 $A_S = 3.6 \text{ cm}^2$
 $A_T = 1.4^2 \pi$
 $A_T = 1.96\pi \text{ cm}^2$
 $P = .584$ $P = 58.4\%$

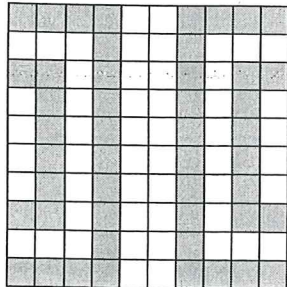
$r = 1.4$
 $\sin 30 = \frac{2.4}{r}$

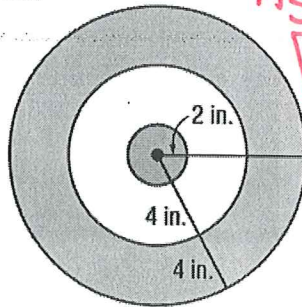
5.  $A_S = 12 \times 12 - \pi 6^2$
 $A_S = 30.90^2$
 $A_T = 1440^2$
 $P = .214$ $P = 21.4\%$

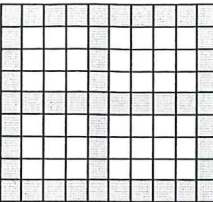
6.  Some as #11

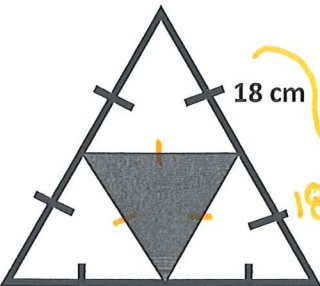
7.  $A_S = 24 \times 24 - 4\pi 6^2$
 $A_S = 123.60^2$
 $A_T = 5760^2$
 $P = .215$
 $P = 21.5\%$

8. Apothems are 6 and 10.  $\sin 54 = \frac{6}{r}$ $r = 7.4$
 $\sin 54 = \frac{10}{R}$ $R = 12.4$
 $A_S = 5 \cdot \frac{1}{2} (12.4)^2 \sin 72 - 5 \cdot \frac{1}{2} (7.4)^2 \sin 72$
 $A_S = 235.40^2$
 $A_T = 5 \cdot \frac{1}{2} (12.4)^2 \sin 74$
 $A_T = 365.60^2$
 $P = .643$
 $P = 64.3\%$

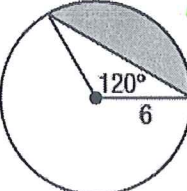
9.  Some as in class

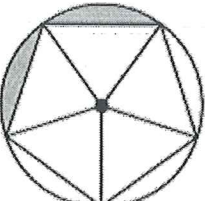
10.  $A_S = \pi 10^2 - 6^2 \pi + \pi 2^2$
 $A_S = 68\pi \text{ in}^2$
 $A_T = 100\pi \text{ in}^2$
 $P = 68\%$

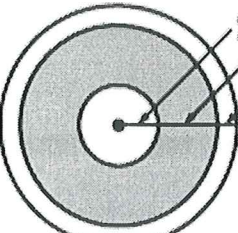
11.  $A_S = 48 u^2$
 $A_T = 90 u^2$
 $P = .53 = 53\%$

13.  36 Total:
 $A_T = \frac{1}{2} 36 \cdot 36 \sin 60$
 $A_T = 561.2 \text{ cm}^2$

Shaded:
 $= \frac{1}{2} 18 \cdot 18 \sin 60$
 $A_S = 140.3 \text{ cm}^2$
 $P = 0.25$
 $P = 25\%$

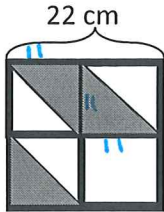
15.  $A_S = \frac{120}{360} \pi 6^2 - \frac{1}{2} 6 \cdot 6 \sin 120$
 $A_S = 22.1 \text{ units}^2$
 $A_T = 36\pi \text{ units}^2$
 $P = .195$ $P = 19.5\%$

17.  $A_S = \frac{2}{5} (\pi 4^2 - 5 \cdot 2 \sin 72)$
 $A_S = 4.9 \text{ units}^2$
 $A_T = 16\pi u^2$
 $P = .097$
 $P = 9.7\%$

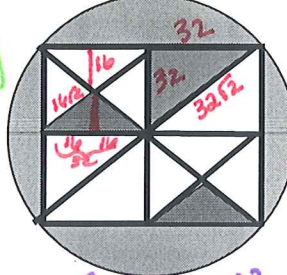
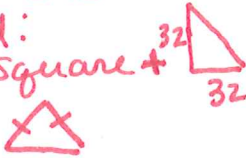
19.  $A_S = 25\pi - 4\pi$
 $A_S = 21\pi \text{ cm}^2$
 $Total = 36\pi \text{ cm}^2$

Probability:
 $\frac{21\pi}{36\pi} = .583$
 58.3%

12. Use the squares below.

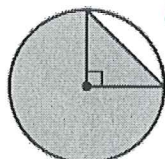
 22 cm
 Shaded: $3 \frac{1}{2} 11 \cdot 11$
 $A_S = 181.5 \text{ cm}^2$
 $A_T = 22 \times 22$
 $A_T =$

14. Diameter = $64\sqrt{2} \text{ m}$

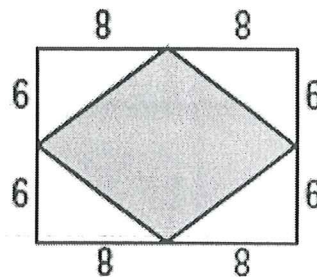
 32
 Shaded:
 Circle - Square + 2 
 $A_S = \pi (32\sqrt{2})^2 + \frac{1}{2} 32 \times 32 + 2 (\frac{1}{2} 32 \times 16) - 64 \times 64$
 $A_T = (32\sqrt{2})^2 \pi$
 $A_T = 2048\pi \text{ m}^2$
 $A_S = 4145.98 \text{ m}^2$
 $P = \frac{4145.98}{3361.98} = 1.23$

$P = \frac{52.2}{52.2} = 52.2\%$
 $A_S = \frac{5}{6} (\pi 6^2 - 6 \cdot \frac{1}{2} 6^2 \sin 60)$
 $A_S = 16.3 u^2$
 $A_T = 36\pi u^2$
 $P = .144$ $P = 14.4\%$

18. $R = 8 \text{ cm}$

 $A_S = \frac{3}{4} \pi 8^2 + \frac{1}{2} 8 \cdot 8$
 $A_S = 182.8 \text{ cm}^2$
 $A_T = 64\pi \text{ cm}^2$
 $P = .909$ $P = 90.9\%$

20.



$A_S = 16 \times 12 - 4 \cdot \frac{1}{2} 6 \cdot 8$
 $A_S = 96 u^2$
 $A_T = 16 \times 12 \Rightarrow A_T = 192 u^2$
 $P = .5$
 $P = 50\%$