Geometry 1 - BE

Thursday 3-1-12

SOLVE (EXACT ANSWERS)

1. $2x^2 = 30 + 4x$

2. $5x^2 = 9 - 6x$

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1. $2x^2 - 4x - 30 = 0$

$2(x^2 - 2x - 15) = 0$

Sum $\Rightarrow -2$

prod $\Rightarrow -15$

$+3 \quad -5$

$2(x-5)(x+3) = 0$

$\boxed{x = \{5, -3\}}$

✓ ✓

2. $5x^2 + 6x - 9 = 0$

$a = 5$

$b = 6$

$c = -9$

$b^2 - 4ac$

$(6)^2 - 4(5)(-9)$

$36 + 180 = \boxed{216 = d}$

$\sqrt{216}$

2 108

2 54

6 9

2 3 3 3

$\sqrt{36 \cdot 6}$

$= 6\sqrt{6}$

$x = \dfrac{-b \pm \sqrt{d}}{2a}$

$x = \dfrac{-6 \pm \sqrt{216}}{10}$

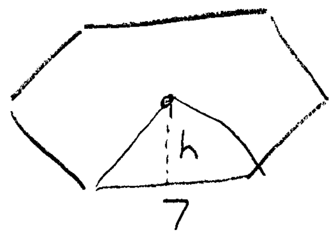
$x = \dfrac{-6 \pm 6\sqrt{6}}{10}$

$$\boxed{x = \frac{-3 \pm 3\sqrt{6}}{5}}$$

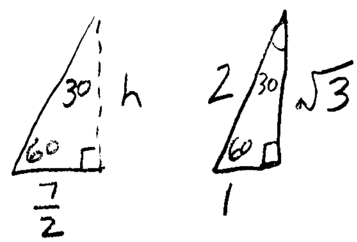
GEOMETRY – Homework Review – Pg 613
3, 6, 14, 19.

(3) Area of Regular Hexagon – Perimeter = 42 YDS

$\frac{42}{6} = 7$ YDS per SIDE



Central Angle
$\Rightarrow \frac{360}{6} = 60°$



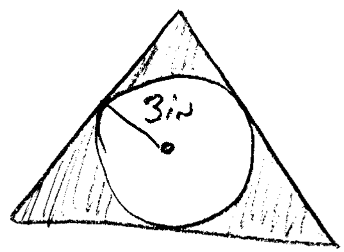
$\therefore h = \frac{7}{2}\sqrt{3} = \frac{7\sqrt{3}}{2}$

$\therefore$ Area $= \frac{1}{2}(42)\,\frac{7\sqrt{3}}{2} = \frac{21 \cdot 7\sqrt{3}}{2}$

$\boxed{\text{Area} = \frac{147}{2}\sqrt{3}\ \text{YD}^2}$ EXACT

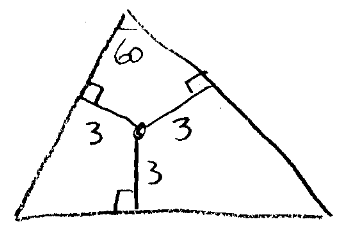
$A = 73.5(1.732) = 127.30 \cong \boxed{127.3\ \text{YD}^2}$
APPROXIMATE

⑥ Shaded area? Equilateral $\triangle$

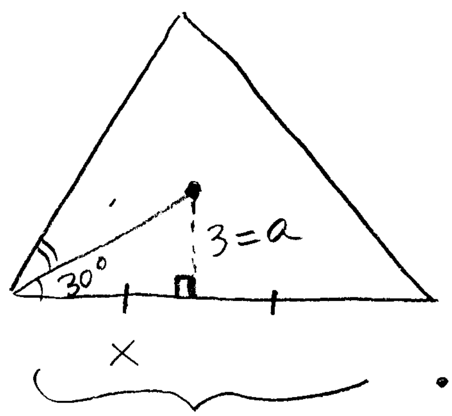


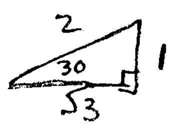
$$A_{\odot} = \pi(3)^2 = 9\pi \text{ in}^2$$

$A_{\triangle} \Rightarrow$



Angle bisecters meet at the incenter $\Rightarrow 30°$
Radius is perpendicular to tangent line.





$\therefore\ x = 3\sqrt{3}$

$S = 6\sqrt{3}$

$P = 18\sqrt{3}$

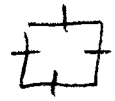
$$A_{\triangle} = \frac{1}{2} P a$$

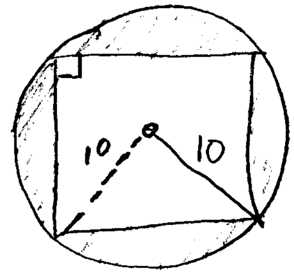
$$A_{\triangle} = \frac{1}{2} \cdot 18\sqrt{3} \cdot 3 = 27\sqrt{3} \text{ in}^2$$

$$\therefore\ A_{SHADED} = 27\sqrt{3} - 9\pi \text{ in}^2$$

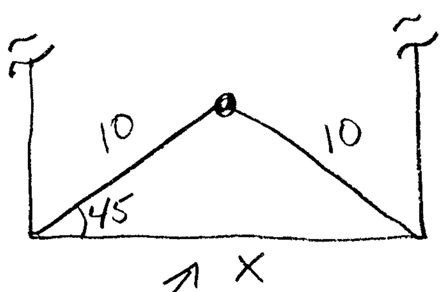
$$46.765 - 28.274 = 18.491$$

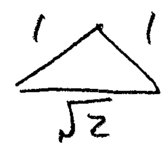
$$\boxed{A_{SHADED} = 18.5 \text{ in}^2}$$

(14) $A_{SHADED} = ?$ Assume 



$$A_{\odot} = \pi(10)^2 = 100\pi \text{ UNITS}^2$$

$A_{\square} \Rightarrow$ 



$$X = 10\sqrt{2}$$

$$A_{\square} = (10\sqrt{2})(10\sqrt{2}) = (100)(2) = 200 \text{ UNITS}^2$$

$$A_{SHADED} = 100\pi - 200$$

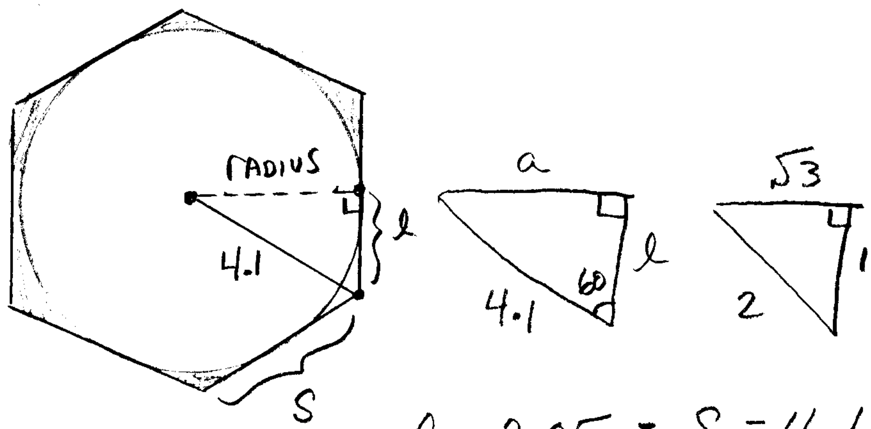
$$= 314.16 - 200$$

$$\cong 114.16$$

$$\boxed{A_{SHADED} \cong 114.2 \text{ units}^2}$$

(19) $A_{SHADED} = ?$ Assume regular hexagon

$\frac{720}{6} = 120° =$ interior $\angle$



$l = 2.05 \therefore S = 4.1$

$a = 2.05\sqrt{3}$

$$A_{Hex} = \frac{1}{2} P a = \frac{1}{2} \underbrace{(6 \cdot 4.1)}_{P=6s} \underbrace{2.05\sqrt{3}}_{a}$$

$$= 3(4.1)(2.05)\sqrt{3} = 25.215\sqrt{3} \text{ units}^2$$

$$A_{\odot} = \pi r^2 = \pi (2.05\sqrt{3})^2 = \pi(4.203)(3)$$

$$= 12.608\,\pi \text{ units}^2$$

$$\therefore A_{SHADED} = 25.215\sqrt{3} - 12.608\pi \text{ units}^2$$

$$= 43.674 - 39.609$$

$$= 4.064$$

$$\boxed{A_{SHADED} \cong 4.1 \text{ units}^2}$$

Ch. 11-5 Geometric Probability

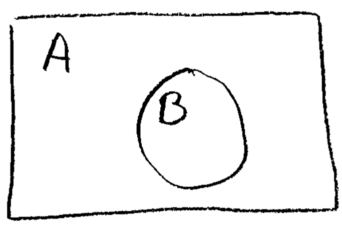
$$P(\text{event}) = \frac{\text{Number of successful outcomes}}{\text{total number}}$$

Geometric Probability

Could involve length, area, or volume.

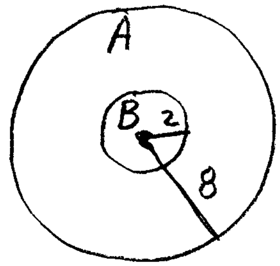
Area Example:

If a point in region A is chosen at random, the probability that the random point will be in region B is:



$$\frac{\text{Area of region } B}{\text{Area of region } A}$$

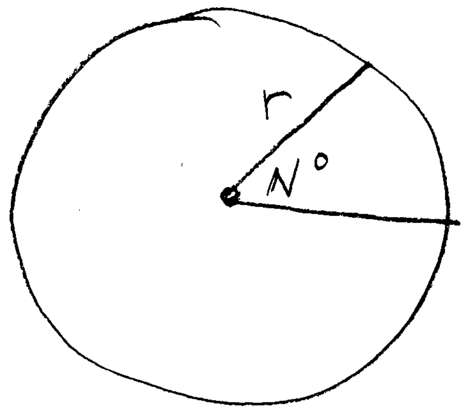
Ex $P(\text{Region } B) = ?$



$$P(B) = \frac{\text{Area of } B}{\text{Area of } A} = \frac{\pi(2)^2}{\pi(8)^2} = \frac{4}{64} = \frac{1}{16}$$

$$\boxed{P(B) = \frac{1}{16} = 6.25\%}$$

Area of A Sector of A circle:

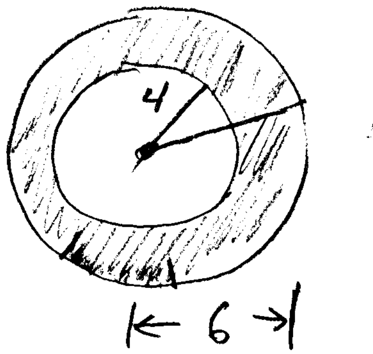


$$\boxed{A = \left(\frac{N}{360}\right)\pi r^2}$$

EX2
Pg 623 Area of sector if central angle is $46°$ And $r = 6$

$$A = \frac{46}{360}\left(\pi(6)^2\right) = \frac{46 \cdot \cancel{36}^{1} \cdot \pi}{\cancel{360}_{10}} = \boxed{4.6\pi \text{ units}^2}$$

Ex Find the shaded area

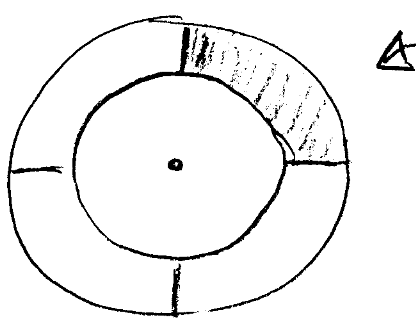


$A_{\odot} = \pi 6^2$

$A_{\odot} = \pi 4^2$

$36\pi - 16\pi = \boxed{20\pi \text{ UNITS}^2 = A_{SHADE}}$

If the SHADED AREA WAS DIVIDED into 4 equal segments, the area of each would be $\frac{20\pi}{4} = 5\pi$ UNITS^2



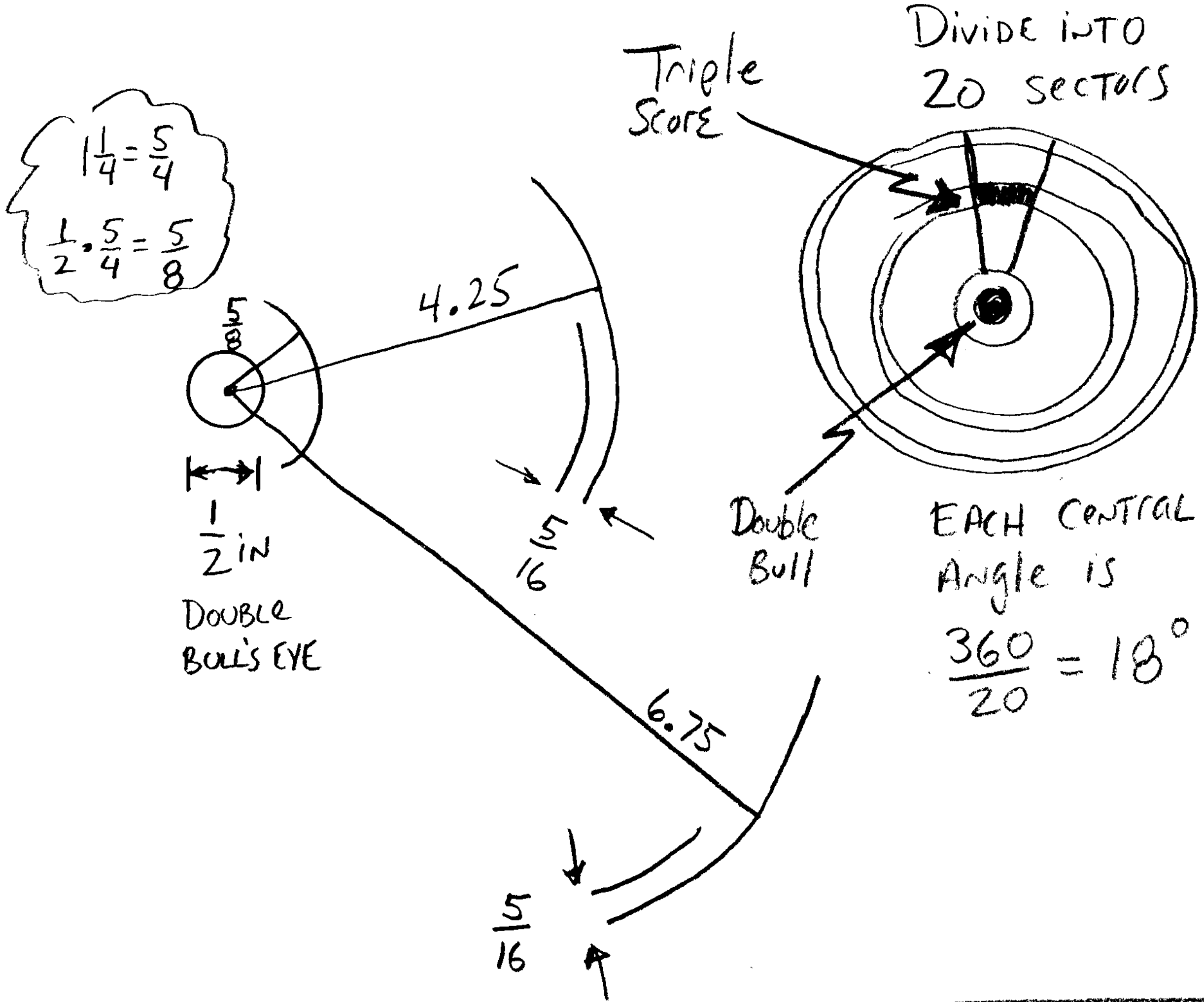
Geometry I Homework Name: ______________ Per. ___

For the bull's-measure a small circle with a diameter of half an inch at the center of the board. This is the inner bull's-eye. Next, mark a slightly larger circle around this one with a diameter of 1.25 inches. This is the outer bull's-eye. The inner bull's-eye is generally colored black and the outer is colored red.

Next, mark out a larger circle by measuring 4.25 inches from the center of the board. This will be the outer edge of your triple-score band. Mark a thin band with a width of 8mm (or 5/16 of an inch) inside this circle. This is the triple score ring.

Finally, do the same with a larger circle measured out 6.75 inches from the center of the board. Another ring, with a width of 8mm will complete the double-score ring and finish the layout of your dartboard.

Next, divide the board into 20 equal sections, radiating out from the bull's-eye. The bull's-eye is not divided, but the double and triple rings are. Each slice of the board has a particular number assigned to it, with the slice on the top always marked as 20.



Compare the area of the double bull and triple score – which is harder to hit and why??