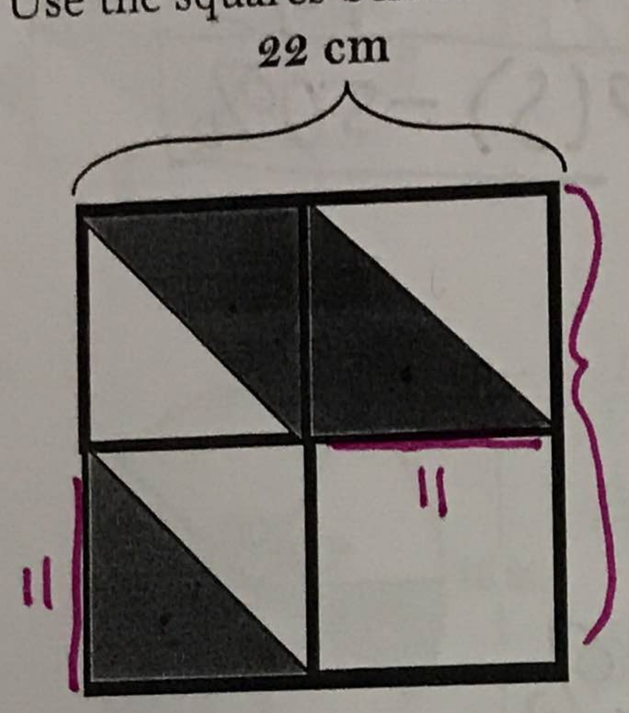
Key

ACC Geometric Probability Review/Warm-up

Find the area and the probability that a point chosen at random lies in the shaded area. Round to nearest tenth. Not drawn to scale.

1. Use the squares below.



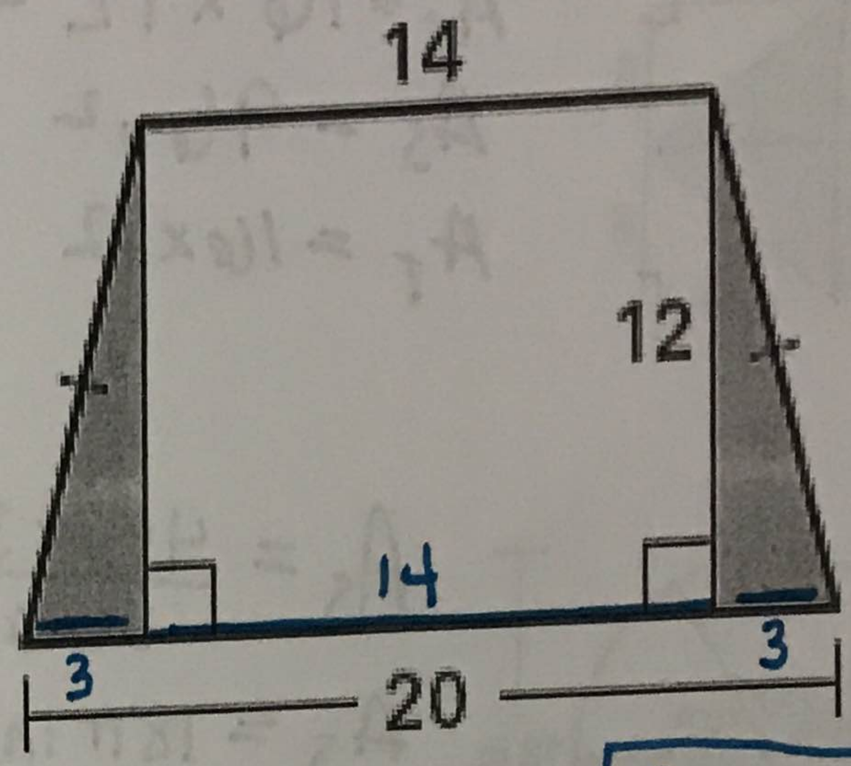
$A_T = 22 \times 22$ $A_T = 484 cm^2$

$A_S = 3\frac{1}{2}\ 11 \times 11$

$A_S = 181.5 cm^2$

$P(S) = 37.5\%$

2.



$A_S = 2 \cdot \frac{1}{2} 3 \cdot 12$ $A_S = 36$

$A_T = \frac{1}{2} 12 (20 + 14)$

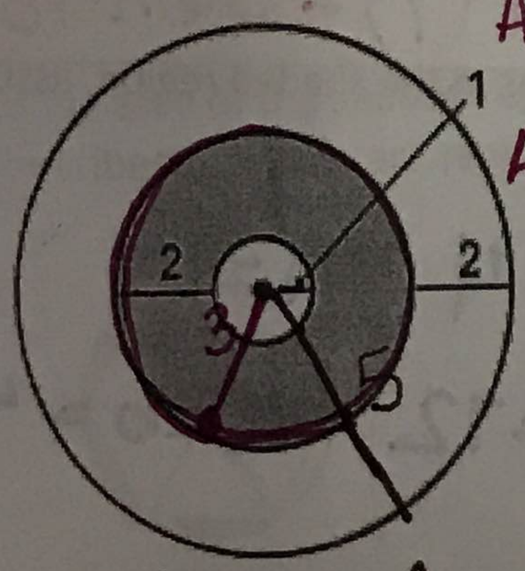
$A_T = 204$

$P(S) = \frac{36}{204}$ 17.6%

What is the area of the white region?

What is the probability of choosing at random a space in the shaded region?

3.



$A_S = \pi 3^2 - \pi 1^2$

$A_S = 9\pi - 1\pi$

$A_S = 8\pi$ units^2

$A_T = 25\pi$ units^2

$A_W = \text{Total} - A_S$

$A_W = 25\pi - 8\pi \rightarrow A_W = 17\pi$ units^2

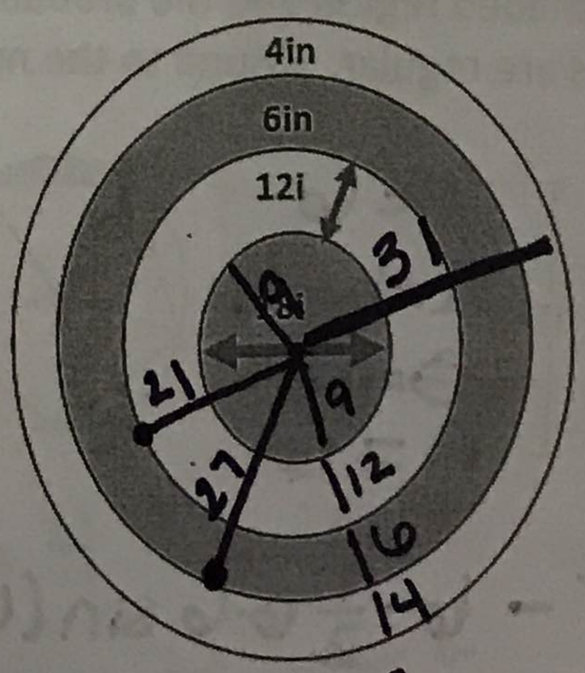
$A_W = \pi 5^2 - \pi 3^2 + \pi 1^2$

$= 25\pi - 9\pi + 1\pi$

multiple methods

$P(S) = \frac{8\pi}{25\pi} = 32\%$

4. (all units are inches- some were cut off on picture)



$A_S = 369\pi$

$A_W = \pi 31^2 - \pi 27^2 + \pi 21^2 - \pi 9^2$

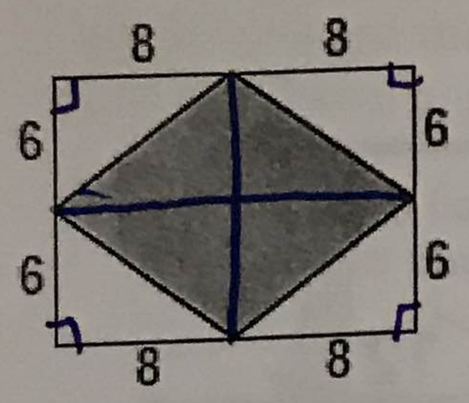
$A_W = 592\pi$ in^2

$A_T = \pi 31^2$ $A_T = 961\pi$ in^2

$P(S) = \frac{369\pi}{961\pi}$ $P(S) = 38.4\%$

Find the area and the probability that a point chosen at random lies in the shaded area. Round to nearest tenth. Not drawn to scale.

5.



$A_S = 16 \times 12 - 4 \cdot \frac{1}{2} \cdot 6 \cdot 8$

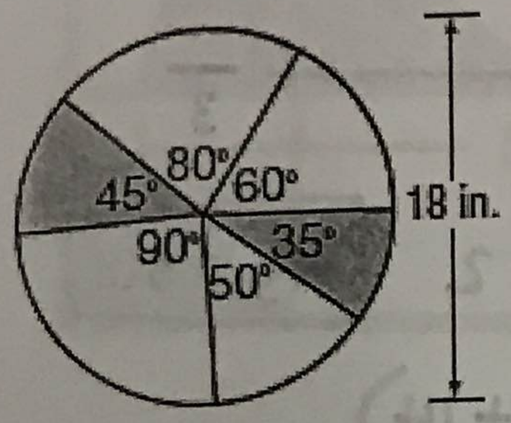
$A_S = 960^2$

$A_T = 16 \times 12 \quad A_T = 192 u^2$

$P(S) = \frac{96}{192}$

$\boxed{P(S) = 50\%}$

6.



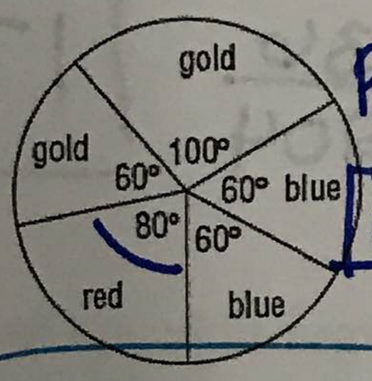
$A_S = \frac{45+35}{360} \pi 9^2$

$A_S = 18\pi \text{ in}^2$

$P(S) = \frac{18\pi}{81\pi} \quad P(S) = 22.2\%$

Find the area of the indicated sector. Then find the probability of spinning the color indicated if the diameter of each spinner is 6 inches. $r = 3$

7. Red



$\text{Red} = \frac{80}{360} \pi 3^2$

$\boxed{A_R = 2\pi \text{ in}^2}$

$P(R) = \frac{80}{360}$

$\boxed{P(R) = .2}$

8. Gold

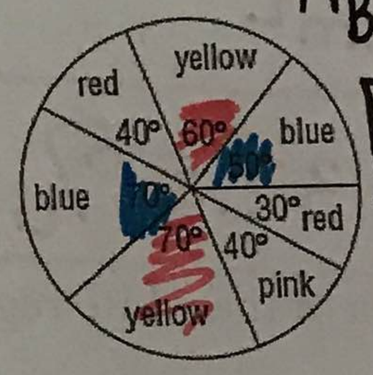
$\frac{160}{360}$

$(G) = \frac{160}{360} \pi 3^2$

$P(G) = 44.4\%$

$\boxed{A_G = 4\pi \text{ in}^2}$

9. Blue



$P(B) = \frac{120}{360}$

$P(B) = 33.3\%$

$A_B = \frac{120}{360} \pi 3^2$

$\boxed{A_B = 3\pi \text{ in}^2}$

10. Yellow

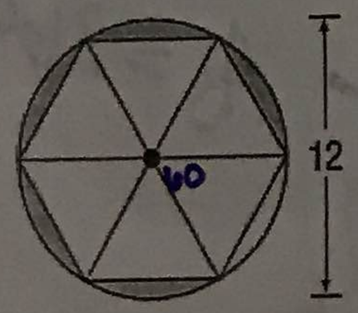
$A_Y = \frac{130}{360} \pi 3^2$

$\boxed{A_Y = \frac{13\pi}{4} \text{ in}^2}$

$\boxed{P(Y) = 36.1\%}$

Find the area of the shaded region and the probability that a point chosen at random lies in the shaded region, assume all inscribed polygons are regular. **Round to the nearest tenth.**

11.



$r = 6$

$a = b = 6$

$\theta = 60$

$n = 6$

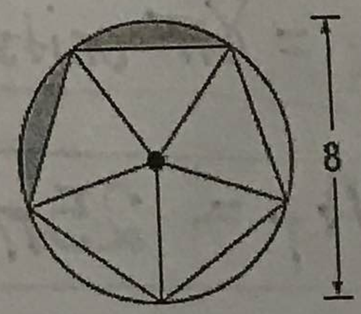
$A_S = \frac{5}{6}\left(\pi 6^2 - 6 \cdot \frac{1}{2} 6 \cdot 6 \sin(60^\circ)\right)$

$A_S = 16.3$

$A_T = 36\pi$

$P(S) = \frac{16.3}{(36\pi)} = 14.4\%$

12.



$r = 4 \quad n = 5$

$\theta = 72 \quad a = b = 4$

$A_S = \frac{2}{5}\left(\pi 4^2 - 5 \frac{1}{2} \cdot 4.4 \cdot \sin(\pi\right)$

$A_S = 4.9$

$A_T = 16\pi$

$P(S) = \frac{4.9}{(16\pi)} \quad P(S) = 9.7$