Geometric Probability Worksheet

1) A dartboard is shown in the figure. Find the probability of hitting the shaded region. Given $a = 4$ units, $b = 16$ units.

$$\text{Large } \Theta = \pi \cdot 16^2 = 256 \pi$$
$$\text{Square } = 4 \cdot 4 = 16$$
$$2 \text{ semi-circles } = \pi \cdot 2^2 = 4 \pi$$
$$\text{A shaded } = \text{square} - \text{circles} = 16 - 4 \pi$$

$$P_{\text{ob}} = \frac{16 - 4 \pi}{256 \pi} \approx \frac{3.43}{256 \pi} \approx 0.04$$

2) Which of the following geometric probabilities is impossible?

a. 0.45
b. 1.20
c. 0.00
d. 1.00

3) What is the probability of getting 75 points when the spinner is spun?

$$\frac{100}{360} = \frac{5}{18} \approx 28\%$$
4) A dart thrown at a rectangular board ABCD is equally likely to land on any point. Find the probability of the dart hitting the inner rectangle PQRS. [Given a = 21 cm, b = 16 cm, c = 18 cm, d = 10 cm.]

\[ \text{Alg. rect} = 21(16) = 336 \]
\[ \text{Sm. rect} = 18(10) = 180 \]
\[ \frac{180}{336} \approx 53.6 \approx 54\% \]

5) A dart is thrown at a board in the form of a circle. If the dart hits the board, then what is the probability that it will land in the shaded area? [Given \( x^\circ = 66^\circ \)].

\[ \frac{294}{360} = \frac{7}{10} \approx 82\% \]

6) A dart is thrown at \( \triangle ABC \). What is the probability that it lands on shaded portion MNK?

\[ \frac{1}{16} = 0.0625 \approx 6\% \]