

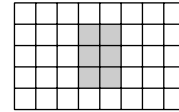
Area Models (pages 438–441)

You can use area models to find the probability of some events.

Probability	<p>Probability (P) is equal to the ratio of the number of ways a certain event can occur to the number of possible outcomes, or</p> $P = \frac{\text{number of ways a certain event can occur}}{\text{number of possible outcomes}}$
--------------------	---

EXAMPLE

Find the probability that a randomly-dropped counter will fall in the shaded region.



$$P = \frac{\text{number of ways to land in the targeted region}}{\text{number of ways to land in the entire figure}}$$

You are comparing two different areas, so you can substitute these areas into the equation.

$$P = \frac{\text{area of targeted region}}{\text{area of the entire figure}}$$

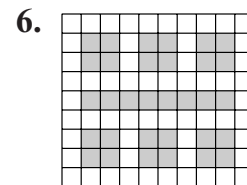
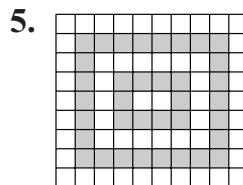
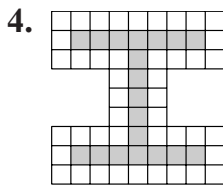
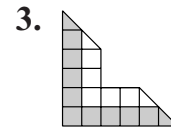
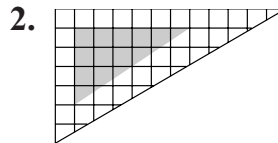
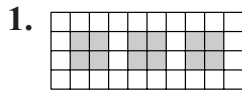
$$P = \frac{6 \text{ square units}}{40 \text{ square units}}, \text{ or } \frac{6}{40}$$

$$P = \frac{6 \div 2}{40 \div 2} \quad \text{Divide the numerator and denominator by the GCF.}$$

$$P = \frac{3}{20}$$

PRACTICE

Find the probability that a randomly-dropped counter will fall in the shaded region.



7. **Standardized Test Practice** A toddler spilled a cup of milk on the floor of a room that has 350 square feet of carpet, and 200 square feet of tile. What is the probability that the toddler spilled the milk on the tile?

A $\frac{7}{11}$

B $\frac{3}{8}$

C $\frac{2}{5}$

D $\frac{4}{11}$

Answers: 1. $\frac{3}{10}$ 2. $\frac{7}{2}$ 3. $\frac{8}{5}$ 4. $\frac{63}{19}$ 5. $\frac{5}{2}$ 6. $\frac{45}{16}$ 7. D
--