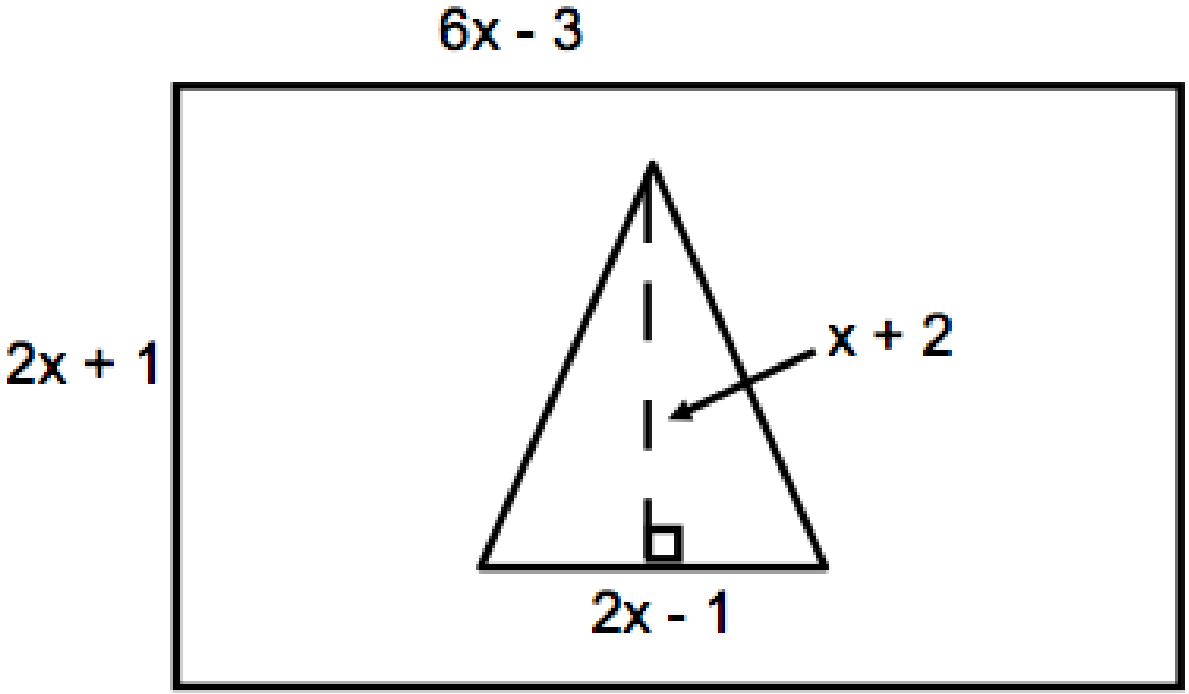
Chapter 11-4 Geometric Probability Notes

Read over box on p.666.



A rectangular flower garden contains a triangular water feature (pond). Write a model which gives the probability that a seed blown by the wind will land in the water feature?

Work.

$$\text{Geometric Probability} = \frac{\text{Area of Smaller Region (Water Feature)}}{\text{Area of Total Region (Total Garden)}}$$

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$$P = \frac{\frac{1}{2}(2x-1)(x+2)}{(6x-3)(2x+1)}$$

Factor $6x-3$

$$\frac{\frac{1}{2}\cancel{(2x-1)}(x+2)}{3\cancel{(2x-1)}(2x+1)}$$

Cancel $2x-1$

Work.

$$\text{Geometric Probability} = \frac{\text{Area of Smaller Region (Water Feature)}}{\text{Area of Total Region (Total Garden)}}$$

$$\frac{2 \cdot \frac{1}{2}(x+2)}{2 \cdot 3(2x+1)}$$

Multiply by 2 to clear the $\frac{1}{2}$

$$\frac{x+2}{6(2x+1)}$$

Find the actual probability if $x = 4$ feet. Write as fraction in lowest terms and as a percent.

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$$\frac{x+2}{6(2x+1)}$$

$$\frac{4+2}{6(2\cdot 4+1)} = \frac{6}{54} = \frac{1}{9} \text{ or } 11.\overline{1}\%$$