P(B|A)
Probability the event B will occur, given that event A has already occured.

Conditional probability problems can also be solved using the formula

$$P(B|A) = \frac{P(A \text{ and } B)}{P(A)}$$

Example 5

P(B and A) = 0.25

Jennifer enjoys performing in school plays and she auditions for many roles. The probability that she will audition for a school play is 0.75 and the probability that she auditions and also gets the part is 0.25, determine the probability that Jennifer gets a part, given that she auditioned for the part.

P(A) = 0.75

P(P ∩ A) 0.25

A = audition

P = Part

$$P(P|A) = \frac{P(P \cap A)}{P(A)}$$

$$P(P|A) = \frac{0.25}{0.75} = \frac{0.25}{0.75}$$

$$P(P|A) = 0.33$$

Gets the part given auditioned = 33%