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# Probability of diabetes given high blood sugar level

P_diabetes = 0.10
P_no_diabetes = 0.90

P_high_sugar_given_diabetes = 0.88
P_high_sugar_given_no_diabetes = 0.15

# Total probability of high sugar level
P_high_sugar = (
    P_high_sugar_given_diabetes * P_diabetes +
    P_high_sugar_given_no_diabetes * P_no_diabetes
)

# Applying Bayes' Theorem: P(Diabetes | High Sugar)
P_diabetes_given_high_sugar = (
    P_high_sugar_given_diabetes * P_diabetes
) / P_high_sugar

# Result
print(f"Probability a patient has diabetes given high blood sugar:
{P_diabetes_given_high_sugar:.4f}")
```