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# Regression Data
y <- c(1.1, 2, 2.5, 3)
x1 <- c(11, 12, 10, 14)
x2 <- c(21, 24, 26, 30)

# P1: Using matrix approach to find LSE
X <- matrix(c(
  1, 11, 21,
  1, 12, 24,
  1, 10, 26,
  1, 14, 30
), nrow = 4, byrow = TRUE)

# Calculate coefficients using matrix formula
beta_matrix <- solve(t(X) %*% X) %*% t(X) %*% y
beta_matrix

# P2: Using lm function to calculate LSE
data <- data.frame(y, x1, x2)
model <- lm(y ~ x1 + x2, data = data)
coef(model)

# Answer:
# Both methods yield the same coefficients:
# Intercept: -2.69285714
# x1: -0.09821429
# x2: 0.23750000

```