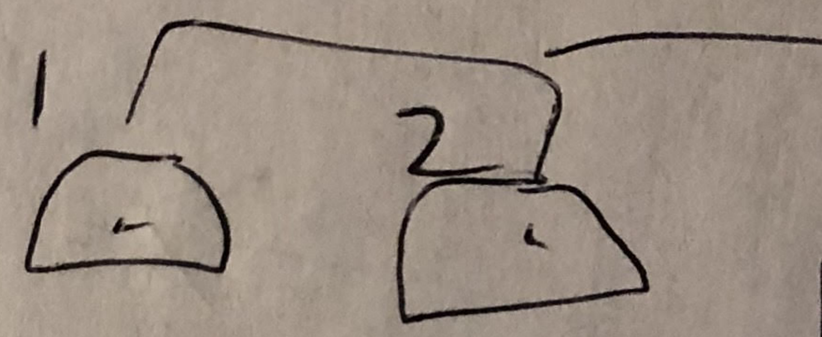
$X = n \times 1$

$((1 \times n)(n \times 1))^{-1}$



$$y = \beta_0 + \underset{=}{1_2} \cdot \beta_1 + \underset{=}{1_3} \cdot \beta_2$$

X_3

10. (C)

$$Sales_i = \beta_0 + \beta_1 \cdot Price_i + \beta_2 \cdot 1_{Urban\,yes_i} + \beta_3 \cdot 1_{US\,yes_i} + \varepsilon_i$$

11 d) $se(\hat{\beta}) = \sqrt{\dfrac{\Sigma(y - x_i \Sigma x_i^2 \Sigma xy)^2}{(n-1)\,\Sigma x_i^2}}$

$$= \sqrt{\dfrac{\Sigma y^2 - 2y \times \Sigma x_i^2 \Sigma xy + x_i^2 (\Sigma x_i^2 \Sigma xy)^2}{(n-1)\Sigma x_i^2}}$$

$\Rightarrow \hat{\beta} = \Sigma x_i^2 \cdot \Sigma x_i \cdot$

4:1 $\Rightarrow$ 1/5 chance

$(1/5)(1) + (4/5)(\quad) = 0$

$(1/5)(\quad) + (4/5)(-1) = 0$

$\cdot\ x/5 = 4/5 \qquad x = 4$