# Proportion of Variability

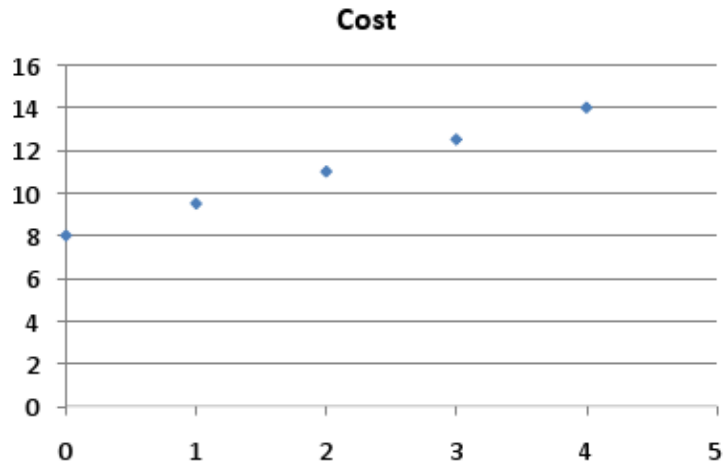
# Coefficient of Determination

# $r^2$

- Percent of variablity in y predicted by the variability in x
- $0 \leq r^2 \leq 1$ ( remember $-1 \leq r \leq 1$)
- Want higher $r^2$

# Ex: Pizza prices, $8 for a pie

- $1.50 per topping



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| # of toppings | Pizza Cost |
|---|---|
| 0 | 8 |
| 1 | 9.5 |
| 2 | 11 |
| 3 | 12.5 |
| 4 | 14 |

- STAT CALC LinReg Find $r^2$

- 100% of the variability in the cost of pizza is determined by the variation in the number of toppings

- Use context when interpreting $r^2$

This is a high/ good proportion of variability

Good Linear Fit

## Use Line to Predict y from x

$$\hat{y} = a + bx$$

a is y intercept

b is slope

y hat is predicted value ( from explanatory, x)

# Interpret Slope

- Use context
- Ie. predicted cost of pizza $