CORRELATION – section 10.1

x = independent variable **y** = dependent variable **n** = number of data pairs

Pearson's correlation coefficient (Pearson's r) **r** is used for sample
(**r** and ρ is always between –1 and +1) ρ (rho) is for population

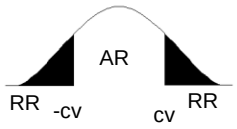
On your calculator:
Record values for corr or r, a, and b.
(Don't use formula on pg. 540)

HYPOTHESIS TEST FOR SIGNIFICANCE OF r VALUE (page 543)
ρ (rho) is population correlation coefficient, assumed = 0

H_o: ρ = 0 (no correlation) ***H_1: ρ ≠ 0** (significant positive or negative correlation)

Alpha level: Use given alpha, use α =.05 as default.

Critical value: Use t-table, 2-tailed test, degrees of freedom = n - 2



Test value: $\mathbf{tv} = \mathbf{r}\sqrt{\dfrac{\mathbf{n}-\mathbf{2}}{\mathbf{1}-\mathbf{r}^2}}$

Decision: Reject H_o if tv > critical value or tv < -critical value; do not reject H_o otherwise.

LINEAR REGRESSION – section 10.2

(use only if Pearson's r is significant)

Line equation: $\mathbf{y' = a + bx}$ **where**
- **y' = predicted value of y**
- **a = y-intercept of regression line**
- **b = slope of regression line**

On your calculator: Use the **a** and **b** values determined while finding correlation **r**.
(Don't use formulas on pg. 553)

Coeficient of Determination (R^2 or **r^2)** is the square of Pearson's r value.