A scatter plot is a graph used to determine whether there is a relationship between paired data. Scatter plots can show a positive correlation, a negative correlation, or no correlation.
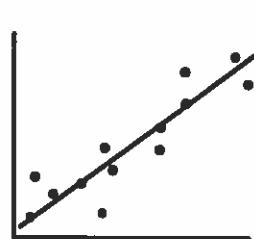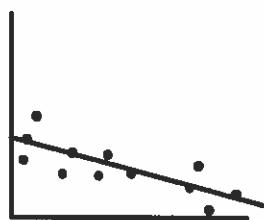
positive correlation   negative correlation   no correlation

Dining Out   Correlation?

Number of Customers
I = 2

$(3, 28)$

$(2, 20)$

5   6   7   8   9

Time   I = 15 min

Negative Correlation

C = # of Customers

h = # of hours
     af 5PM
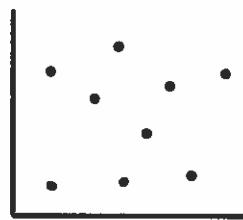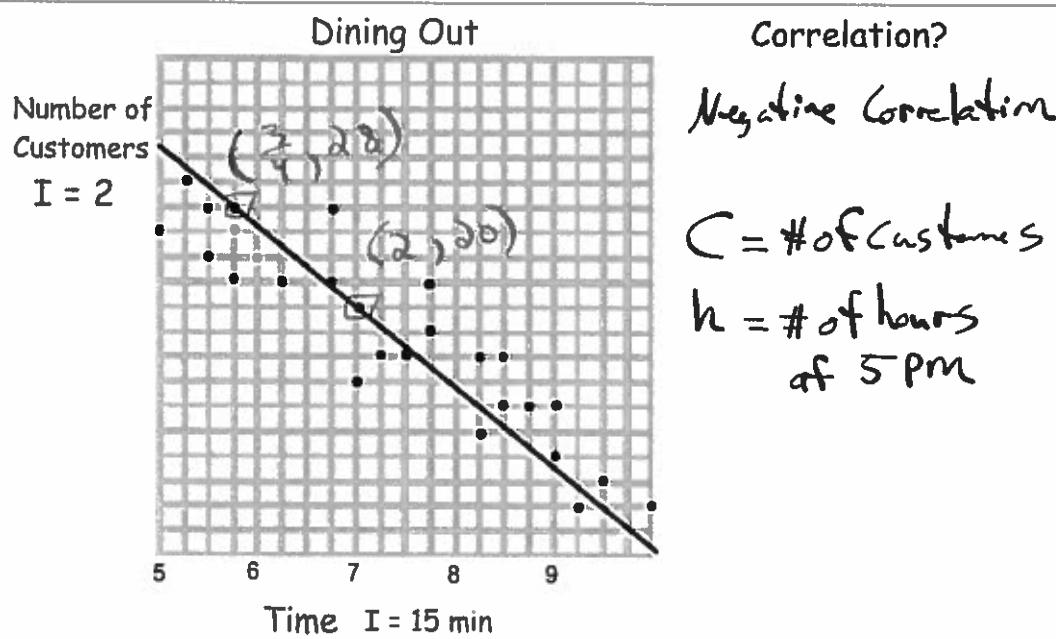
How many customers would you expect at 8:00?

Write a model using $(\frac{3}{4}, 28)$ and $(2, 20)$.

① $m = \frac{\Delta C}{\Delta h} = \frac{28-20}{\frac{3}{4}-2} = \frac{8}{-\frac{5}{4}}$

$m = -\frac{32}{5}$ customers per hour

② $y = mx + b$

$20 = -\frac{32}{5}(2) + b$

$\frac{100}{5} = -\frac{64}{5} + b$

$b = \frac{164}{5}$ customers at 5:00

③ $C = -\frac{32}{5}h + \frac{164}{5}$ where C is the # of customers h hours after 5:00 PM.

At 8:00, $h = 3$. $C = -\frac{32}{5}h + \frac{164}{5}$

$C = -\frac{32}{5}(3) + \frac{164}{5}$

$C = \frac{-96}{5} + \frac{164}{5}$

$C = \frac{68}{5} \approx 14$ customers

I would expect about 14 customers at 8:00.

Counting Critters

Correlation?

Number of Pets
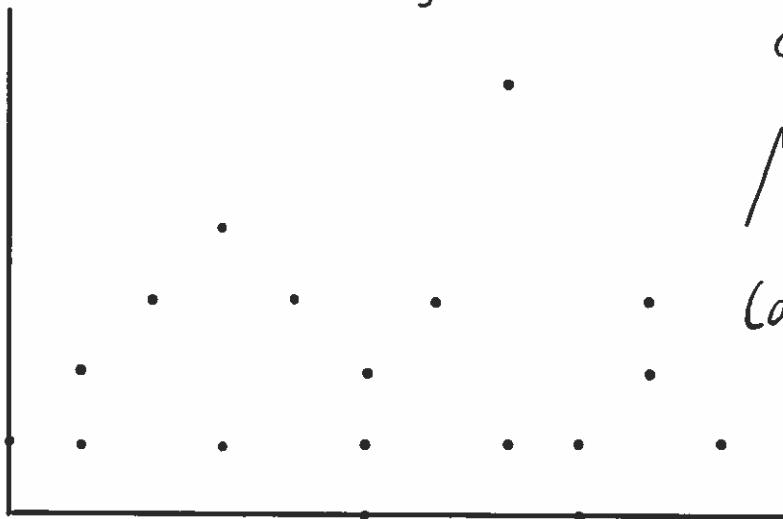
No Correlation!

Age of Owner　　I = 2 years