Section 4.4 Correlations and their Coefficients

Name: $\qquad$

A


D


B


E


C


F


1. Which plot(s), if any, have a positive association (an $r$ value that is positive)?
2. Which plot(s), if any, have a negative association (an $r$ value that is negative)?
3. Which plot(s), if any, have no association (an $r$ value that is close to zero)?
4. What does a perfect negative linear relationship mean?
5. The correlation coefficients for the six scatter plots are shown below. Match each scatter plot with the correct correlation coefficient and then identify the strength of the correlation (Strong, Moderate, or Weak).
$\qquad$
a. -0.85
b. -0.40 $\qquad$
$\qquad$
c. 0.00 $\qquad$
$\qquad$
d. 0.50 $\qquad$
$\qquad$
e. 0.90 $\qquad$
$\qquad$
f. 0.95 $\qquad$
$\qquad$
6. The charts show the lean body mass and metabolic rates for 12 women. From this data can we predict a person's metabolic rate at rest from a person's lean body mass?
a. Draw a scatter plot of the data.
b. Use a Correlation tool to calculate Pearson's Correlation Coefficient.


| Individual | body mass <br> (in Kg) | metabolic rate <br> (cal/day) |
| :---: | :---: | :---: |
| 1 | 36.1 | 0995 |
| 2 | 54.6 | 1425 |
| 3 | 48.5 | 1396 |
| 4 | 42.0 | 1418 |
| 5 | 50.6 | 1502 |
| 6 | 42.0 | 1256 |
| 7 | 40.3 | 1189 |
| 8 | 33.1 | 0913 |
| 9 | 42.4 | 1124 |
| 10 | 34.5 | 1052 |
| 11 | 51.1 | 1347 |
| 12 | 41.2 | 1204 |


c. Write the equation of the line of best fit for the data.
d. What does the coefficient of determination $\left(r^{2}\right)$ tell us about our linear regression?

