Chapter Review

A. Determine if each sentence is true or false.

1. The correlation coefficient measures the strength of the linear relationship between two variables.
2. The coefficient of determination is a measure that gives the proportion of variability in the dependent variable that is accounted for by the independent variable.

B. Given the following observations with variables x and y, compute r, r^2, b_0, and b_1. Then determine the estimated regression line.

1.

x	5	6	7	8	9
y	15	17	16	18	21

2.

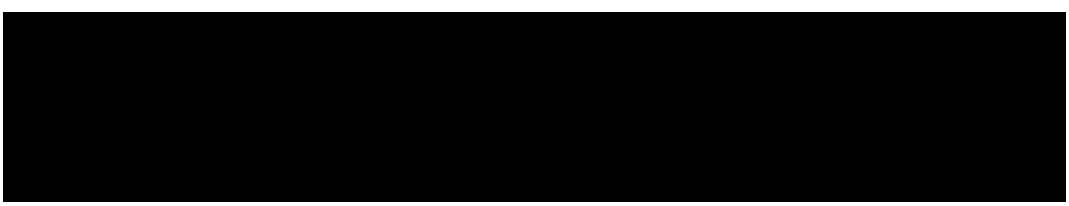
x	25	27	29	31	33
y	45	44	42	35	38

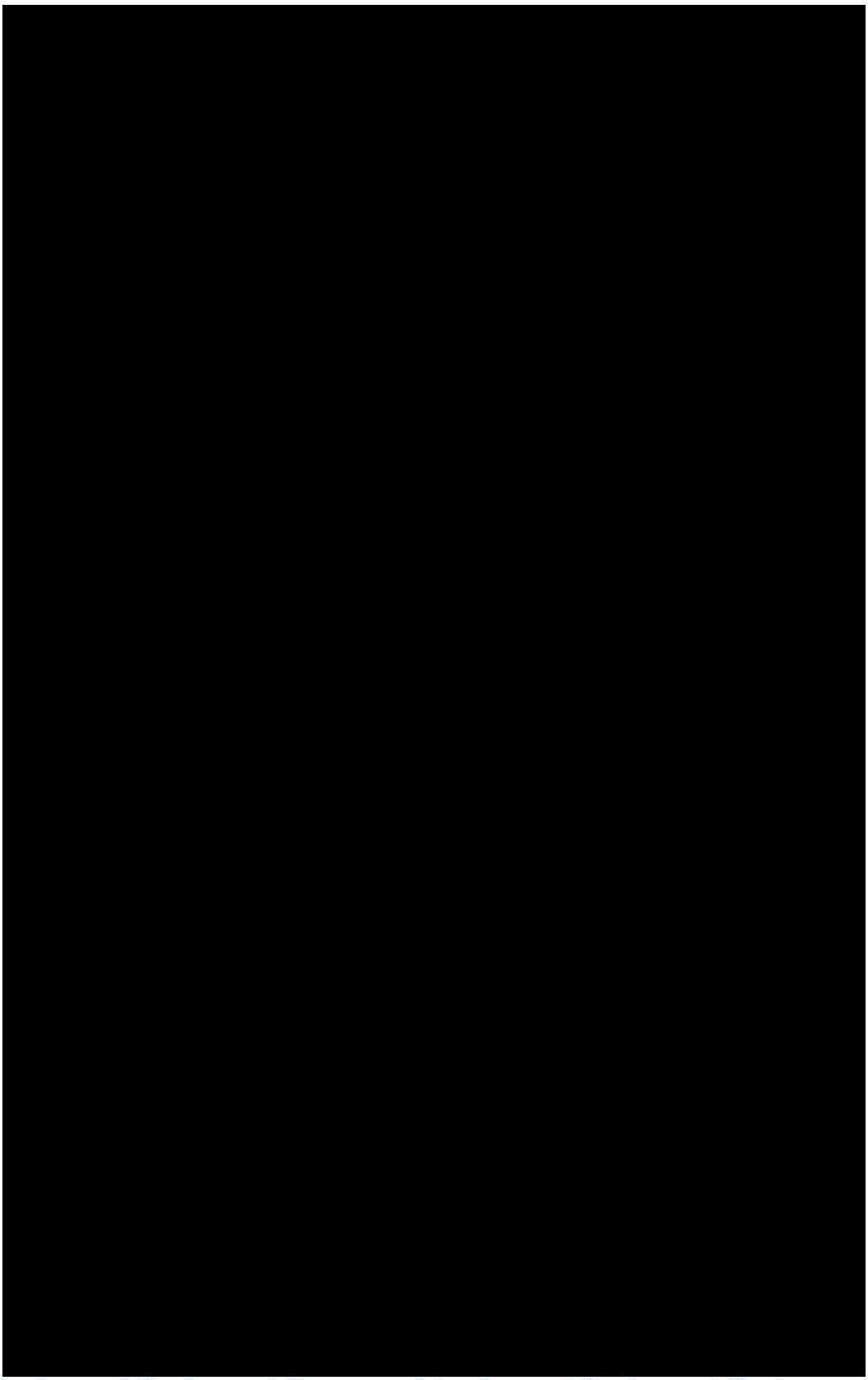
C. Do what is asked.

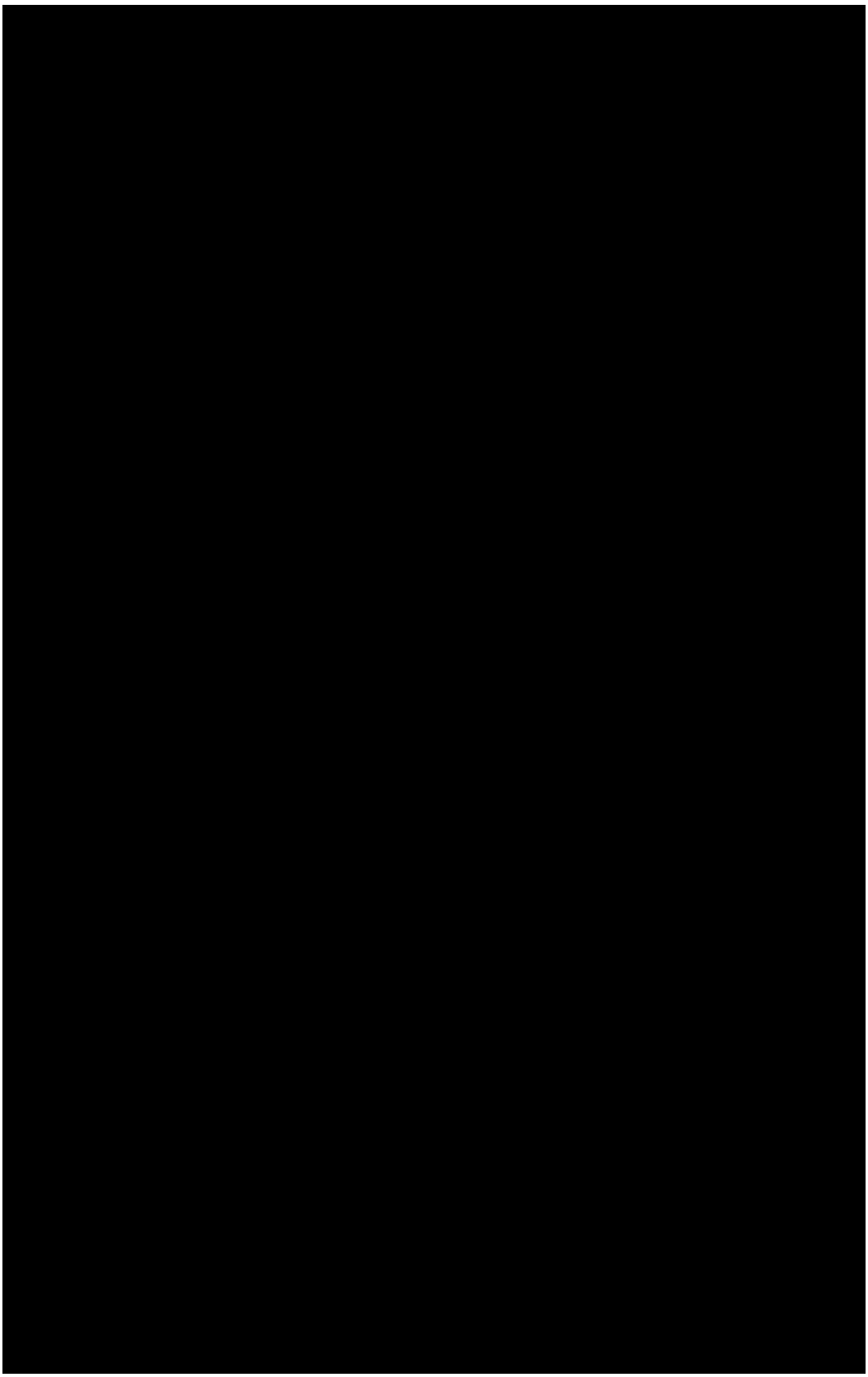
1. The midterm examination and the final examination scores of a random sample of students are given below.

Midterm Examination Scores	*Final Examination Scores*
68	60
76	70
66	56
73	82
60	42
66	48
68	52
56	66
66	48
58	74
82	56
52	56
74	58
72	72
80	62

a. Compute the correlation coefficient between the two variables. Interpret the result.
b. Calculate the coefficient of determination. Interpret the result.
c. Determine if there is a significant correlation between the two variables.
d. Determine the estimated regression equation. Interpret b_0 and b_1.
e. If a student obtains a midterm examination score of 65, what is his/her expected final examination score?







5. The following data shows the age (in years) of a random sample six participants in a walk-run activity for senior citizens and the number of kilometers they finished.

x	60	62	64	65	66	67
y	10	8	5	3	3	2

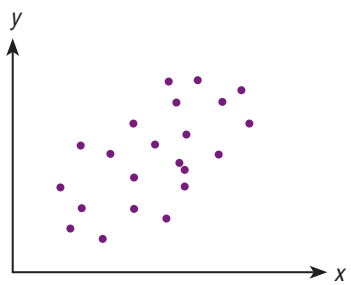
a. Draw a scatter diagram and try to draw a straight line through the data.
b. Determine the coefficient of correlation and interpret.
c. Determine the estimated regression line. Interpret b_0 and b_1.
d. Compute for the coeeficient of determinaton and interpret.
e. Predict the value of y when $x = 10$.
f. Use hypothesis testing to determine if there is a significant correlation between the two variables.

Summative Assessment

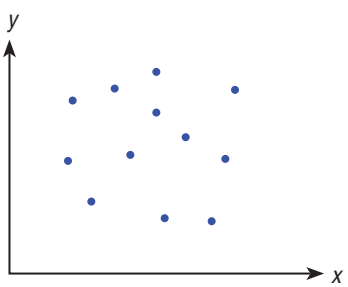
Choose the letter of the correct answer.

1. The strength of the relationship between two variables is the _____.
   a. residual
   b. random error
   c. coefficient of correlation
   d. coefficient of determination
2. The coefficient of determination is denoted by
   a. r
   b. r^2
   c. b_0
   d. b_1
3. Which scatter plot shows positive correlation?

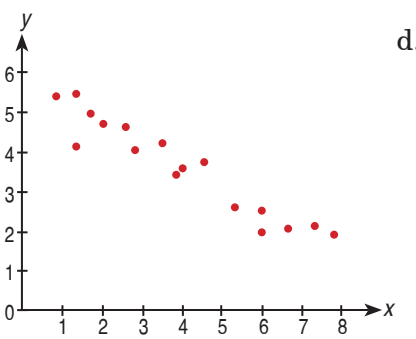
a.



c.



b.



d. none of the above