Which of the following three scatter diagrams should be summarized by $r$?

A circle of diameter $d$ has area $\frac{1}{2} \pi d^2$. An investigator plots a scatter diagram of area against diameter for a sample of circles with different diameters. (The diagram is shown below.) The correlation coefficient is ______. Fill in the blank, and explain. Options:

-1  nearly -1  nearly 0  nearly 1  1

A sociologist is studying the relationship between suicide and literacy in nineteenth-century Italy. He has data for each province, showing the percentage of literates and the suicide rate in that province. The correlation is 0.6. Does this give a fair estimate of the strength of the association between literacy and suicide?
Studies find a negative correlation between hours spent watching television and scores on reading tests. Does watching television make people less able to read? Discuss briefly.

In a certain class, midterm scores average out to 60 with an SD of 15, as do scores on the final. The correlation between midterm scores and final scores is about 0.50. Estimate the average final score for the students whose midterm scores were
(a) 75   (b) 30   (c) 60

For women age 25–34 in the U.S. in 2005, with full-time jobs, the relationship between education (years of schooling completed) and personal income can be summarized as follows:

\[ \text{average education} \approx 14 \text{ years, } \quad \text{SD} \approx 2.4 \text{ years} \]
\[ \text{average income} \approx \$32,000, \quad \text{SD} \approx \$26,000, \quad r \approx 0.34 \]

Estimate the average income of those women who have finished high school but have not gone on to college (so they have 12 years of education).

As part of their training, air force pilots make two practice landings with instructors, and are rated on performance. The instructors discuss the ratings with the pilots after each landing. Statistical analysis shows that pilots who make poor landings the first time tend to do better the second time. Conversely, pilots who make good landings the first time tend to do worse the second time. The conclusion: criticism helps the pilots while praise makes them do worse. As a result, instructors were ordered to criticize all landings, good or bad. Was this warranted by the facts? Answer yes or no, and explain briefly.