

NAME: _____

UNIT 4 • DESCRIBING DATA

Lesson 3: Interpreting Linear Models

Problem-Based Task 4.3.2: Good and Bad Cholesterol

Cholesterol is a substance found in human blood. There are two types of cholesterol: HDL (high-density lipoprotein) and LDL (low-density lipoprotein). HDL is a good type of cholesterol, and LDL is the type of cholesterol that can lead to heart attacks and strokes. The sum of HDL and LDL cholesterol is your total cholesterol: $\text{HDL} + \text{LDL} = \text{total cholesterol}$. The table below shows the total cholesterol and HDL cholesterol for 20 patients, in milligrams per deciliter (mg/dL). Is there a linear relationship between total cholesterol and HDL cholesterol? Use the correlation coefficient, r , to explain your answer.

Total cholesterol (mg/dL)	HDL cholesterol (mg/dL)
251	47
159	30
289	63
198	54
298	75
265	53
258	86
140	45
267	49
262	71
271	50
240	40
218	47
210	57
187	31
256	52
278	79
267	50
186	58
198	38

- Create a scatter plot of the data.
- What do you think is the relationship between total cholesterol and HDL cholesterol? Use the shape of the scatter plot to explain.
- Calculate the correlation coefficient, r , using your graphing calculator.
- What does the correlation coefficient tell you about the relationship between the two events?