Chapter 9

Performance Task (continued)

Cost vs. Fuel Economy

Hybrid cars have a higher fuel economy but are more expensive than their equivalent nonhybrid counterparts. How much more do you pay in fuel costs per mile if you purchase a hybrid than if you purchase its nonhybrid equivalent?

This table lists 6 hybrid model cars.

Model	City Fuel Economy (miles per gallon)	Purchase Price (thousands of dollars)
Car A Hybrid	50	29.1
Car B Hybrid	44	26.0
Car C Hybrid	32	46.4
Car D Hybrid	43	26.8
Car E Hybrid	20	68.4
Car F Hybrid	27	47.5

This table lists 6 equivalent nonhybrid cars.

Model	City Fuel Economy (miles per gallon)	Purchase Price (thousands of dollars)
Car A	24	21.8
Car B	22	22.4
Car C	18	40.1
Car D	25	22.9
Car E	15	48.2
Car F	20	19.1

1. Construct a scatter plot for each data set. Label each axis and scale. Find the line of best fit for each scatter plot. Sketch these lines in their appropriate graphs.

Hybrid	Nonhybrid
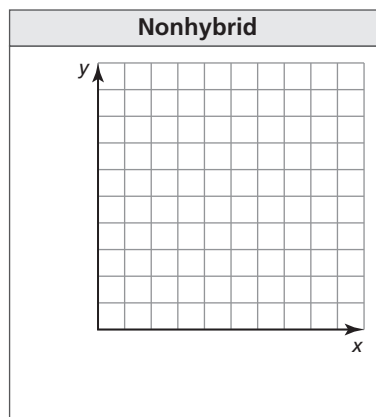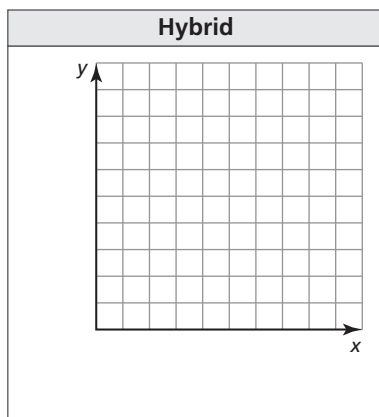
Chapter 9 **Performance Task (continued)**

Cost vs. Fuel Economy

2. Is there a positive, negative, or no correlation between miles per gallon and purchase price for hybrid cars? Is the correlation weak or strong?

3. Is there a positive, negative, or no correlation between miles per gallon and purchase price for nonhybrid cars? Is the correlation weak or strong?

4. How does the slope of each line compare? What is the meaning of the slope for each line?

5. How does the *y*-intercept of each line compare? What is the meaning of the *y*-intercept for each line?

6. Use a graphing calculator or graphing technology to graph your two lines of best fit in a larger window. Is there a fuel economy value where a hybrid car and a nonhybrid car cost the same? Explain your reasoning. Is this a realistic value? Explain. How could you have found this same value using your two equations of your lines of best fit?

7. A new innovative car company comes out with a car that costs $34,000 and gets 19 miles per gallon. According to your scatterplots and lines of best fit, what kind of car is this? Explain.