UNIT 9 Project

Demonstrate your knowledge by giving clear, concise solutions to each problem. Be sure to include all relevant drawings and justify your answers (show all your work). You may show your solution in more than one way to investigate beyond the requirements of the problem.

1. **a.** Complete the pattern in the chart.

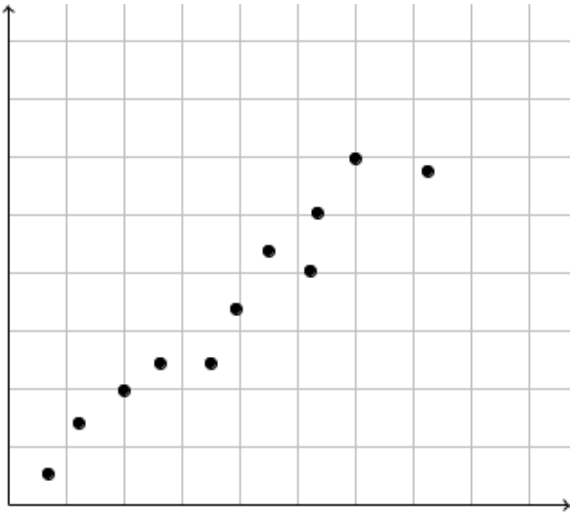
x	-2	-1	0	1	2	3		
y	-9	-5	-1	3	7			

b. Does the chart in part a show a proportional relationship? Explain your answer.

c. Write an equation for the relation shown in the chart.

d. Graph the equation in part c.

2. **a.** Describe the pattern of the points in the scatter plot to the right.



b. Give at least two examples of real-life situations that, if graphed, would result in a correlation like the one shown in the scatter plot.

c. Draw a line of best fit for this scatter plot. Then, find the equation of the line. Show your work.

3. **a.** Come up with a probability problem that deals with dependent events.

b. Solve the probability problem in part a.

4. The chart to the right gives gas mileage for different models of cars made by Acura for the year 2014.

Gas Mileage in Acura Vehicles

Model	Cylinder	MPG
ILX (AV-S)	4	38
ILX (S5)	4	28
ILX (M6)	4	25
TSX (S5)	4	26
TSX (M6)	4	24
TSX (S5)	6	23
RLX (S6)	6	24
RLX (S7)	6	30
TL 2WD (S6)	6	23
TL 4WD (S6)	6	21
TL 4WD (M6)	6	20
TSX WAGON (S5)	4	25
MDX 2WD (S6)	6	23
RDX 2WD (S6)	6	23
MDX 4WD (S6)	6	21
RDX 4WD (S6)	6	22

Source: fueleconomy.gov

a. Calculate each probability for 6 cylinder cars.

i. Gas mileage between 20-24 mpg

ii. Gas mileage between 25-29 mpg

iii. Gas mileage of at least 30 mpg

b. Make a histogram using the probabilities calculated in part a.

c. Use the same ranges from part a to make a histogram for gas mileage in cars with 4 cylinders.

d. Interpret the histograms created in parts b and c. Using these histograms, interpret the relationship between the Cylinders in the engine of a car and gas mileage in cars. Does this data show an accurate relationship? What other factors could affect gas mileage?

e. After doing this investigation, what kind of car would you buy? Justify your answer.