Course Review 2 Assignment

For full marks, show all calculations, steps, and/or explain your answers. State all necessary formulas.

Total: 50 marks.

Unit D: Graphing

1. Use the diagrams below to complete *part a* to *part e*.

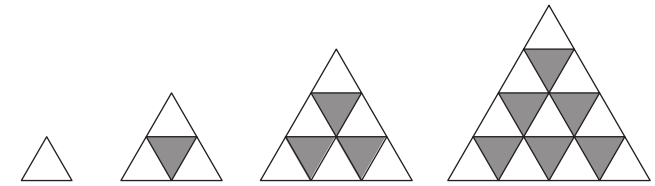


Figure 1 Figure 2 Figure 3 Figure 4

(1) a. Complete the table of values.

Figure Number x	Number of White Triangles y
1	
2	
3	
4	
5	
6	

(1) b. Determine if the set of data represents a linear or non-linear relation. Explain.

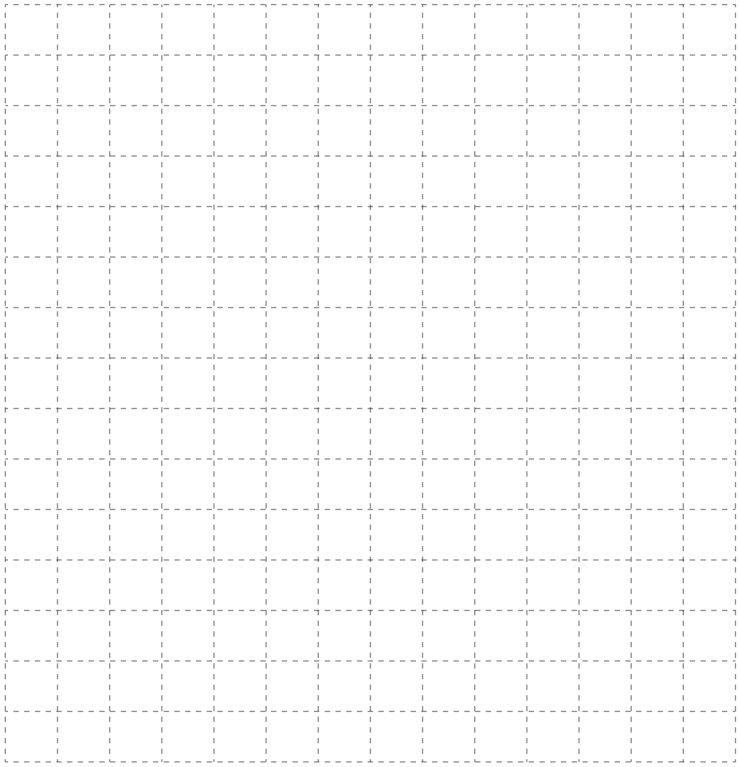
(1) c. Determine the independent variable and dependent variable for this relation. Explain.

(1) d. Is the data represented in the table continuous or discrete data? Explain.

(2) e. Graph the data.

Be sure to include

- an appropriate scale
- the labelled axes
- the dependent variable on the y-axis and the independent variable on the x-axis
- a title



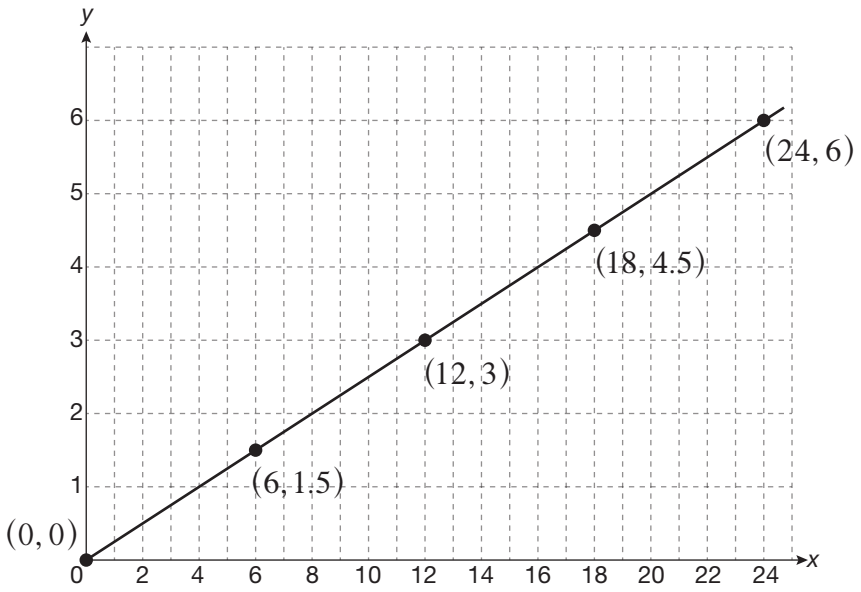
2. Use the table below to answer the following.

x	y
0	0
10	7.5
20	15
30	22.5

(1) a. Explain why the data in the table demonstrates direct variation.

(1) b. Determine the equation of the line.

(2) 3. Use the slope formula to determine the rate of change for the graph. Write an equation for this relation.



(1) 4. Create a table of values for the equation $y = 0.5x$. Use the values $x = 0, 1, 2, 3, 4$.

(1) 5. What is the equation represented by the following table of values?

x	y
0	2
1	6
2	10
3	14
4	18

6. The table of values for a set of data is given below.

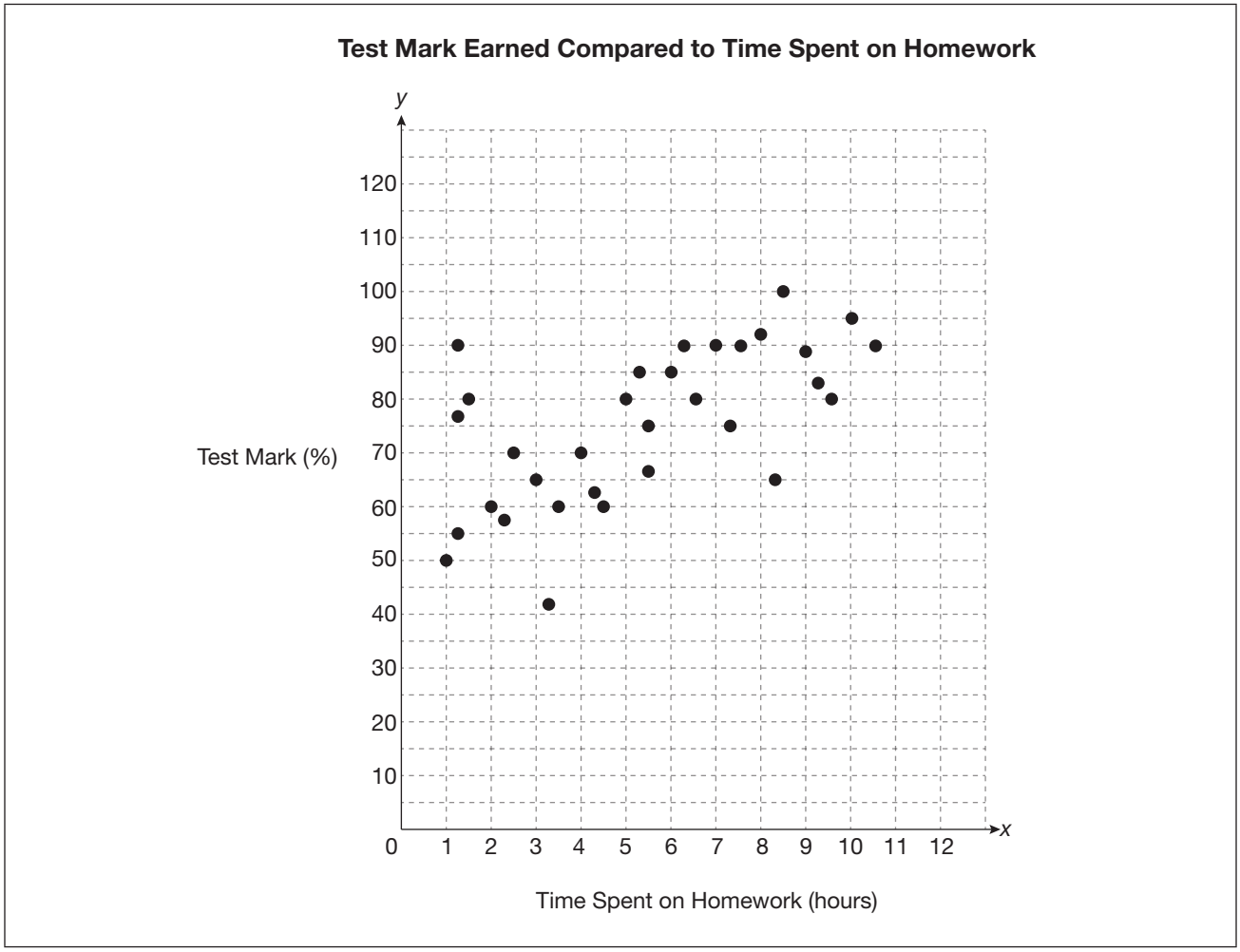
x	y
0	300
10	550
20	800
30	1 050
40	1 300

(1) a. Determine the rate of change.

(1) b. Is the data in the table of values an example of direct variation or partial variation?

(1) c. Determine the equation of the line represented by the table of values.

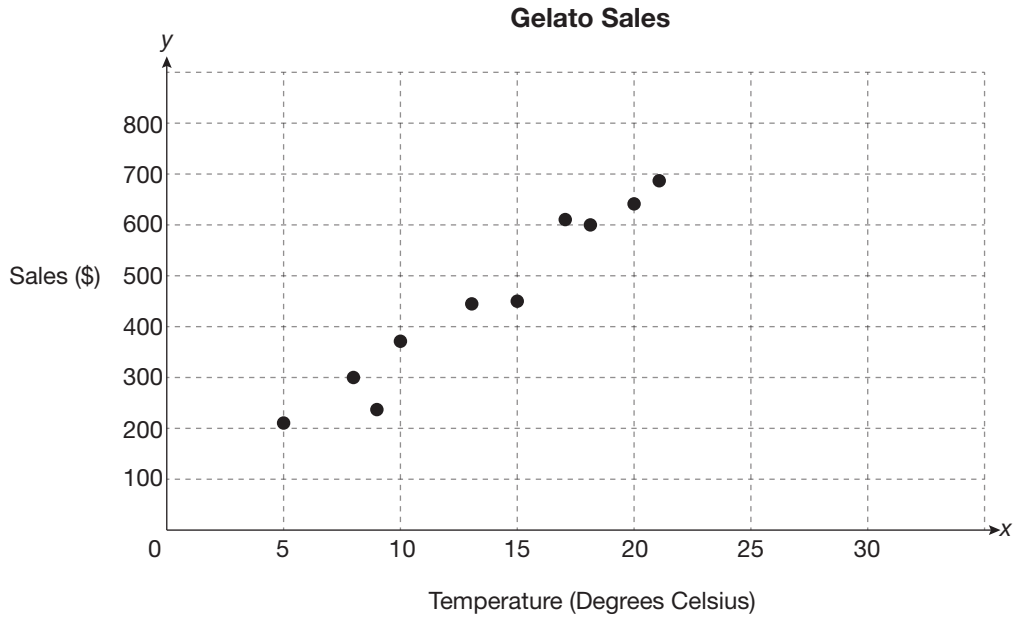
Use the following graph to answer question 7.



(1) _____ 7. What type of correlation is displayed in the graph?

A. a strong, positive correlation
B. a weak, positive correlation
C. a weak, negative correlation
D. a strong, negative correlation

8. An Edmonton gelato store kept track of its gelato sales versus the temperature for two weeks last summer. Their results are displayed in the scatterplot.



(1) a. Draw the line of best fit.

b. The temperature was $16^{\circ}\ C$ on May 15th.

(1) i. What were the gelato sales for May 15th?

(1) ii. Is interpolation or extrapolation used to solve this problem? Explain.

Unit E: Statistics and Probability

9. Determine the required measure of central tendency for the following set of data: $9, 2, 5, 8, 3, 8$.

(1) a. the mean

(1) b. the median

(1) c. the mode

10. A fish and wildlife officer records the weights of rainbow trout caught on the Bow River. Their weights to the nearest tenth of a pound are 2.9, 1.5, 2.4, 3.3, 1.8, 4.2, 3.6, 3.7, 1.9, 7.8, 2.4, and 1.7.

(1) a. Is there one or more values that can be considered an outlier? Explain why the value(s) would be an outlier.

(2) b. Calculate a trimmed mean for the data. Round to the nearest tenth.

(2) 11. Liam made a new video that he posted online. There are 50 videos posted on his site. His new video received more likes than 40 of his other videos. What is the percentile ranking for Liam's latest video?

(2) 12. Kirsten's final exam is worth 35% of her final mark. Kirsten has a mark of 69% in her math course before writing the final exam. What mark must she earn on the final exam to get a final grade of 75%?

Hint: start by finding the weighting of the course work if the final exam is worth 35%.

(3) 13. Place a *T* in front of the true statements and an *F* in front of the false statements.

_____ The mean is the best measure of central tendency to use when the data has extreme values.

_____ The mode is the best measure of central tendency to use when the most popular value is required.

_____ The median would be the best measure of central tendency to use for finding the average birth weights of babies born in a given hospital during the month of March.

_____ The mean is the best measure of central tendency to use when finding the most popular soft drink choice at a cafeteria.

_____ The mean is the best measure of central tendency to use when finding the approximate salary of players on a professional baseball team.

_____ The median is the best measure of central tendency to use when finding the middle ranked team in a tournament in terms of number of wins.

14. Janna observed that 18 out of 35 people in her movie theatre bought popcorn. The manager told Janna that a total of 426 people were seeing a movie that night. Answer the following questions based on Janna's observations.

(2) a. Calculate the probability that a person would buy popcorn.

(2) b. How many people would be expected to buy popcorn that night?

15. The odds in favour of winning a prize on a scratch and win card are $2:5$.

(2) a. Find the probability of winning a prize.

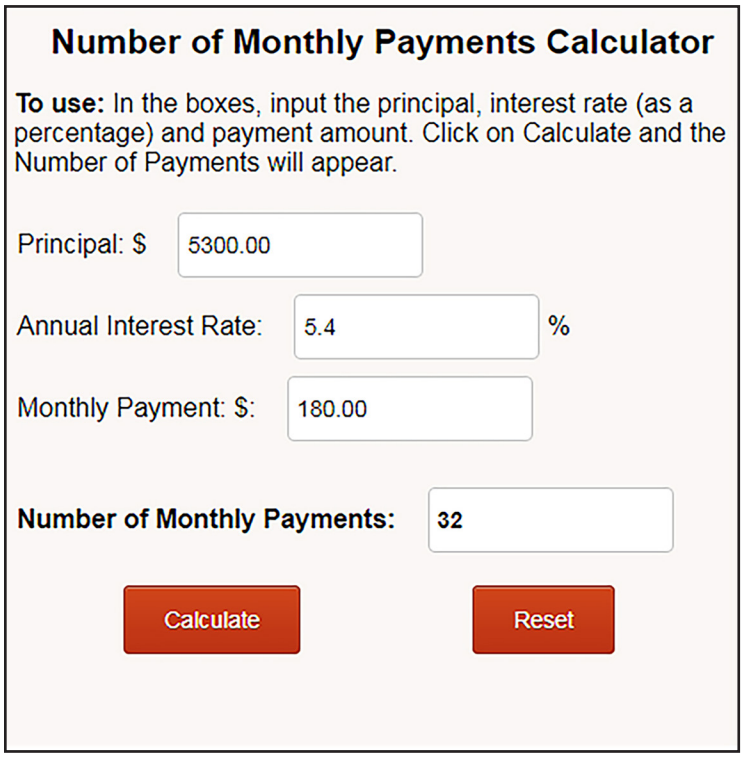
(1) b. Find the odds against winning a prize.

(2) 16. There are 26 tiles in a bag. Each letter of the alphabet is represented on a tile. One tile is randomly chosen. Find the probability of choosing an A or a Z.

Unit F: Finance

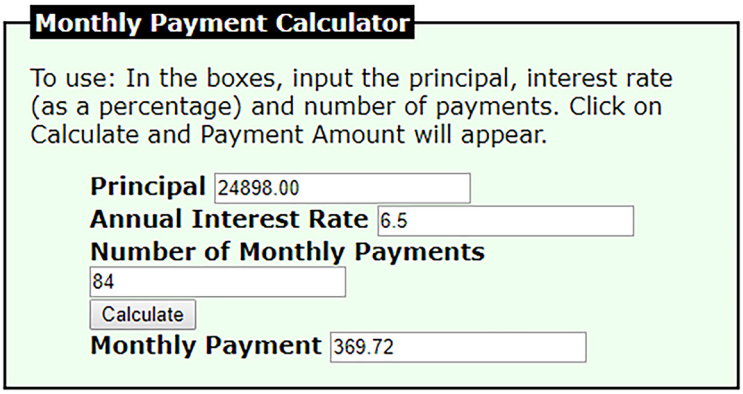
(2) 17. Nandini is starting an event planning business. She has contacted a bank regarding a start-up loan of $\$5\,300.00$. The bank Nandini contacted gives her a loan at an annual rate of 5.4% if she makes payments of $\$180.00$ per month.

The data was entered into the *Number of Monthly Payments Calculator*. The result is shown below.



How long will it take Nandini to pay off the loan? Express the answer in years.

18. Jabari purchased a car that cost $\$24\,898.00$. He receives a car loan for 7 years at an interest rate of 6.5%. He entered this information into the *Monthly Payment Calculator* and was given then following result:



(1) a. Calculate the total amount that Jabari pays for the car.

(1) b. Calculate the amount of interest that Jabari pays.

(2) 19. Elianna purchased a car for $\$36\,877.55$. Four years later, the car is worth $\$20\,300.00$. How much value did Elianna's car lose due to depreciation?

(3) 20. There are advantages and disadvantages to buying or leasing a car. For each of the following items, decide whether buying or leasing is the best option. Place a check mark in the column of the best choice.

	Leasing	**Buying**
ownership		
monthly payments		
customizing		
mileage		
excessive wear and tear		
up-front costs		