APPLICATION OF LINEAR RELATIONS

1) The ABC Repair Company charges customers \$40 for examining and estimating the cost of repairing a broken appliance and \$30 an hour for labour to repair it.

a) Graph the linear relation. The Table of Values shows the fee schedule, where *C* represents the total cost and *n* represents the number of hours of labour.



b) Using y = mx + b form, write the equation of this relationship. (use C and n)

c) What is the slope in this relationship, and what does it represent?

d) What is the y-intercept in this relationship, and what does it represent?

e) By looking on the graph, how much would it cost for repairs if the work took 5 hours?

f) By looking on the graph, how many hours of labour were required to repair an appliance if it cost \$340?

2) A biologist studied a certain kind of tree for the past 10 years. She found that the diameter of the tree increased 2 cm each year. When the biologist began measuring, the diameter was 80 cm.

a) Graph the linear relation with the Table of Values complete. Remember: **D** is the diameter of the tree and **t** is the number of years of growth.





- b) Using y = mx + b form, write the equation that models this tree's growth. (Use D and t)
- c) What is the slope in this relationship, and what does it represent in this problem?
- d) What is the y-intercept in this relationship, and what does it represent in this problem?
- e) What was the diameter of the tree after 7 years?
- f) After how many years was the diameter 92 cm?

<mark>3) The XYZ Taxi Company charges customers \$5 at the start of a fare and then \$2 per km the</mark> taxi drives its customers.

- a) Write an equation that models this relationship with C representing the total cost of the taxi fare in dollars and n representing the number of kilometres driven.
- b) In Desmos graph this equation, Screen capture and submit.