# Part 1: Communication Problems

The first part of the assignment consists of 5 questions that require precise communication of their solutions. They will require a good understanding of the material presented in this review, but your mark will be based on the presentation and communcation of your answers. Use the rubric provided to ensure you are meeting all of the expectations.

## Question 1 (6 points)

Rewrite the following relationships using function notation.

a) An airplane needs to travel 400 km. Determine a function for the speed of the airplane, with respect to time.

b) An ice cream cone is left sitting in the hot sun. Sarah notices that the ice cream melts and loses half of its volume every 5 minutes. If the starting volume was 125 mL, determine a function for the volume, with respect to the amount of time left out in the sun.

c) Scott wants to calculate the distance from his house to each of his friends' houses. If he drives at 50 km/h, find a function for the distance, with respect to the number of hours it takes to travel.

## Question 2 (6 points)

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Find the inverses of each of the relations below algebraically.

$p(r) = 2r^2 + 2r - 1$

$3y + 5x = 18$

$h(t) = -4.9(t + 3)^2 + 45.8$

## Question 3 (6 points)

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With the aid of graphs, explain whether or not the inverses in question 2 are functions.

## Question 4 (24 points)

For each of the functions below, state the domain and range, the restrictions, the intervals of increasing and decreasing, the roots, *y*-intercepts, and vertices.

☐ a) $f(x) = 2x^2 - 8$

☐ b) $f(x) = +\sqrt{x-2}$

☐ c) $f(x) = \frac{x+1}{x-1}$

## Question 5 (8 points)

The point (1,-2) is on the graph of $f(x)$. Describe the following transformations on $f(x)$, and determine the resulting point.

☐ a) $g(x) = 2f(x) + 3$

☐ b) $g(x) = f(x+1) - 3$

☐ c) $g(x) = -f(2x)$

☐ d) $g(x) = -f(-x-1) + 3$

# Part 2: Communication Presentation

The second part of this assignment requires you to create a multimedia presentation of the concepts involved in the topic specified by Question 6 (below). You may **<u>choose one</u>** of the following to do:

- **Record a short video** *(approximately 2 minutes)* of yourself solving the problem and narrate the reasoning behind each step. Imagine that you are a teacher, teaching a class that has not learned the topic yet.

- **Record a short audio file** *(approximately 2 minutes)* of yourself teaching or explaining the problem and its solution. Think of it like a radio show where viewers may or may not have mathematical background. How can you help all of the viewers to understand?

- **Create a slideshow** *(approximately 10 slides)* using a program such as Prezi or Powerpoint to create a dynamic presentation of your question and its solution. In a presentation you can include animations, pictures, audio/video, etc. to help reach your audience.

## Question 6 (15 points)

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☐ Create a multimedia presentation to explain and justify your process steps to one of your solutions in **Question 5**.

# Submitting Your Assignment

This is the end of your assignment. After completing all of the questions, upload your work to the appropriate dropbox.