MATH-241 Created by Pierre-O. Parisé
Worksheet 02 Fall 2022

**Last name:** _____
**First name:** _____
**Section:** _____

| Question: | 1 | 2 | Total |
|---|---|---|---|
| Points: | 10 | 10 | 20 |
| Score: | | | |

**Instructions:** You must answer all the questions below and give your solutions to the TA at the end of the recitation. Write your solutions directly on the worksheet. Late worksheet will not be accepted.

## Question 1 **(10 pts)**

Given that

$$\lim_{x\to 2} f(x) = 5, \quad \lim_{x\to 2} g(x) = 2 \quad \text{and} \quad \lim_{x\to 2} h(x) = -2,$$

find the following limits. If you can't use one of the limit rules, explain why.

(a) (2 points) $\lim_{x\to 2}(f(x) + 5g(x))$.

(b) (2 points) $\lim_{x\to 2}(g(x))^3$.

(c) (2 points) $\lim_{x\to 2} \frac{3f(x)}{g(x)}$.

(d) (2 points) $\lim_{x\to 2}(f(x)g(x))$.

(e) (2 points) $\lim_{x\to 2} \frac{g(x)}{2+h(x)}$.

## Question 2 **(10 pts)**

Using the limit rules, find the following limits.

(a) (5 points) $\lim_{x\to 2}\sqrt{\dfrac{2x^2+1}{3x-2}}$.

(b) (5 points) $\lim_{h\to 0}\dfrac{\sqrt{9+h}-3}{h}$.