COT 3100 Quiz #1: d = rt, logs (9/7/2022)

Last Name: _____ First Name: _____

Circle Recitation: 8:30 am 10:30 am 11:30 am 12:30 pm 3:30 pm 4:30 pm 7:30 pm

1) (5 pts) Jeslyn runs a five mile race. She completes the first two miles running at an average rate of 4 miles per hour. It takes her 48 minutes to complete the last three miles of the race. What was her average speed for the whole five mile race, **in miles per hour? Please leave your answer as a reduced fraction (in the form p/q where both p and q are positive integers that don't share a common factor.)**

2) (8 pts) An shuttle bus is making a 100 mile trip. For the first portion of the trip, the bus averages 60 miles an hour. Unfortunately, a rain storm hits and for the rest of the trip (second portion), the bus averages 48 miles per hour. The average speed of the whole 100 mile trip was 50 miles an hour. How long, **in miles**, was the first portion of the trip?

3) (4 pts) What is the value of the following expression?

$$(log_2 3) \times (log_5 16) \times (log_3 5)$$

4) (8 pts) The following system of equations is satisfied by a single ordered pair (x, y). The product, xy, can be expressed as 2^w, for some positive integer w. Find w.

$$log_2 x + log_4 y = 16$$

$$log_8 x + log_{16} y = 7$$