

Math 120 D - Autumn 2007
Mid-Term Exam Number One
October 18, 2007
Answers

There were two versions of the test.

Version 1 - Robert's speed in problem 1 was 4 km/hr.

1. 3.74757 hours after noon
2. 0.6799001 km
3. Two answers were acceptable due to the unintended inclusion of both inches and cm in the problem.

$$area(x) = \begin{cases} \frac{1}{4}x^2 & \text{if } 0 \leq x \leq 8 \\ 4x - 16 & \text{if } 8 \leq x \leq 14 \end{cases}$$

or

$$area(x) = \begin{cases} \frac{1}{4}x^2 & \text{if } 0 \leq x \leq 8 \\ 4x - 16 & \text{if } 8 \leq x \leq 23.24 \end{cases}$$

4. The smaller enclosure should be 50 meters long in the direction parallel to the river, and 37.5 meters long in the other direction.

Version 2 - Robert's speed in problem 1 was 5 km/hr.

1. 5.064602 hours after noon
2. 0.6772854 km
3. Two answers were acceptable due to the unintended inclusion of both inches and cm in the problem.

$$area(x) = \begin{cases} \frac{1}{4}x^2 & \text{if } 0 \leq x \leq 8 \\ 4x - 16 & \text{if } 8 \leq x \leq 14 \end{cases}$$

or

$$area(x) = \begin{cases} \frac{1}{4}x^2 & \text{if } 0 \leq x \leq 8 \\ 4x - 16 & \text{if } 8 \leq x \leq 23.24 \end{cases}$$

4. The smaller enclosure should be 30 meters long in the direction parallel to the river, and 22.5 meters long in the other direction.