

Math 120 D - Autumn 2007
Mid-Term Exam Number Two
November 15, 2007
Answers

There were two versions.

Version A (in problem 1, Jean will get 40 points if she doesn't study)

1. 65 hours
2. (a)

$$h(x) = \begin{cases} x^2 - 2 & \text{if } x \geq 2 \\ x^2 - 2x + 2 & \text{if } 0 \leq x \leq 2 \\ x^2 + 2 & \text{if } x \leq 0 \end{cases}$$

(b) No: $f(x)$ is not one-to-one. This can be seen by the fact that $f(1) = 0 = f(-1)$.

3. 63.037 meters
4. 27.1718 grams

Version B (in problem 1, Jean will get 30 points if she doesn't study)

1. 32.857 hours
2. (a)

$$h(x) = \begin{cases} x^2 - 3 & \text{if } x \geq 3 \\ x^2 - 2x + 3 & \text{if } 0 \leq x \leq 3 \\ x^2 + 3 & \text{if } x \leq 0 \end{cases}$$

(b) No: $f(x)$ is not one-to-one. This can be seen by the fact that $f(1) = 0 = f(-1)$.

3. 94.4349 meters
4. 37.1777 grams