

Math 120 D, E - Autumn 2006

Mid-Term Exam Number Two

November 16, 2006

Answers

Version A (in problem 1, $g(x) = |3x - 12|$)

1.

$$h(x) = \begin{cases} 5x^2 - 3x + 2 & \text{if } x \leq 2, \\ 15x^2 - 3x + 7 & \text{if } 2 < x \leq 4, \\ 15x^2 + 3x - 17 & \text{if } x \geq 4 \end{cases}$$

Note: the equality on $x \leq 2$ must be there; the equality on 4 can be in either, or both, places.

2. The pressure will be 3 atm.

3. (a) 11.9047619 seconds (b) 48.67477 meters west

4. The tree is 37.9980 feet tall.

Version B (in problem 1, $g(x) = |4x - 20|$)

1.

$$h(x) = \begin{cases} 12x^2 - 4x + 38 & \text{if } x \leq 1, \\ 6x^2 - 4x + 32 & \text{if } 1 < x \leq 5, \\ 6x^2 + 4x - 8 & \text{if } x \geq 5 \end{cases}$$

Note: the equality on $x \leq 1$ must be there; the equality on 5 can be in either, or both, places.

2. The pressure will be 2.12 atm.

3. (a) 10.84905 sec (b) 6.95727888 meters west

4. The tree is 20.57434 feet tall.