

Math 120 B - Autumn 2010
Mid-Term Exam Number One
October 21, 2010

Name: _____

Student ID no. : _____

Signature: _____

Section: _____

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|-------|----|--|
| 1 | 10 | |
| 2 | 10 | |
| 3 | 10 | |
| 4 | 10 | |
| Total | 40 | |

- Complete all four questions.
- Show all work for full credit.
- You may use a scientific calculator during this examination. Graphic calculators are not allowed. Also, other electronic devices are not allowed, and should be turned off and put away for the duration of the exam.
- If you use a trial-and-error or guess-and-check method when an algebraic method is available, you will not receive full credit.
- You may use one hand-written 8.5 by 11 inch page of notes. Write your name on your notesheet and turn it in with your exam.
- You have 50 minutes to complete the exam.

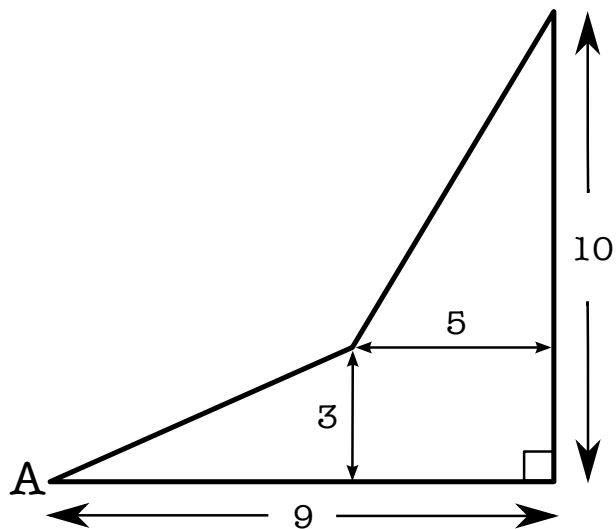
1. Maria took a walk near a radio transmitter. She started her walk from a point 13 km EAST and 2 km NORTH of the transmitter. She walked due WEST for 2.5 hours, then turned and walked due SOUTH for 3 hours.

If she walks at a constant speed of 7 km per hour, how much time did she spend within 6 km of the transmitter?

2. Jo is moving at a constant speed along a straight line in the xy -plane. She starts at the point $(3, -4)$. She passes through the point $(-1, 5)$ 3 seconds after she crosses the x -axis. Give Jo's parametric equations of motion.

3. Sven has a piece of sheet steel in the shape shown below. The dimensions are in centimeters.

Sven wants to make a vertical cut in the steel. If his cut is x centimeters from the left vertex (marked A), express the area to the left of the cut as a multipart function of x .



4. The function $f(x)$ is quadratic. If $f(0) = 4$, $f(1) = 5$ and $f(3) = 11$, what is $f(\frac{1}{2})$?