Present neatly on separate paper. Justify for full credit. ~~No Calculators.~~

Name _____ Score _____ 15 minutes

1.

Two sides of a triangle have lengths 12 m and 15 m. The angle between them is increasing at a rate of $2°/\text{min}$. How fast is the length of the third side increasing when the angle between the sides of fixed length is $60°$?

2.

Two sides of a triangle are 4 m and 5 m in length and the angle between them is increasing at a rate of 0.06 rad/s. Find the rate at which the area of the triangle is increasing when the angle between the sides of fixed length is $\pi/3$.