

Math 51: Assignment 3 (25 points)

Due by the time you take Exam III – Late Assignments will not be accepted.

This assignment is 2 pages long.

- Do all work on a separate sheet of paper.
 - You must show work to receive credit.
 - Turn in work in order (#2 should come after #1, etc.)
 - You may work in groups of up to 3 people. Points will be taken off, if more than 3 names are on one assignment.
- (3 points) $\sec(\theta) = 5$ and $\frac{3\pi}{2} \leq \theta < 2\pi$. Find the exact value of the following. *Decimal answers will not be accepted.*
 - $\tan(2\theta)$
 - $\sin\left(\frac{\theta}{2}\right)$
 - (3 points) Find the exact values of the following. *Decimal answers will not be accepted.*
 - $\csc\left(\tan^{-1}\left(\sin\left(\cos^{-1}\left(-\frac{3}{7}\right)\right)\right)\right)$
 - $\csc\left(\tan^{-1}\left(\sec\left(\sin^{-1}(0.4)\right)\right)\right)$
 - (6 points) Solve the following equations.
 - $5\sec^2\theta + 11\sec\theta - 12 = 0; 0 \leq \theta < 2\pi$
 - $2\sin(\theta)\cos(\theta) - \sin(\theta) - 2\cos(\theta) + 1 = 0; 0 \leq \theta < 2\pi$
 - $4\sec^2(2\theta) = 3\cos^2\theta - 3\sin^2\theta; 0 \leq \theta < 2\pi$
 - $\cos(x) = \tan^{-1}(4) - \sin^{-1}\left(\frac{1}{3}\right)$
 - (3 points) Solve the following triangles (uppercase letters are angles and lower case are the sides opposite the corresponding angle):
 - $a = 7, b = 5, c = 9$
 - $a = 47, b = 56, A = 29^\circ$
 - (5 points) Suppose $\vec{A} = \langle -4, 7 \rangle$ and $\vec{B} = \langle -2, -11 \rangle$
 - Find the magnitude and direction of both vectors.
 - Find $\vec{C} = 3\vec{A} - 2\vec{B}$
 - Find the magnitude and direction of \vec{C}
 - (3 points) The edge of each side of a stop sign is 36 centimeters. Use trigonometry to find the area of the stop sign.



7. (4 points) Three forces act on an object. Find the magnitude and direction of the resulting force.

