

First assignment for 230 students – Math Review Topics

1. Be able to state what is Quadratic Equation and it's solution
2. Basic College Algebra
3. Trigonometry is what we need throughout the semester (and throughout your career). If you don't know the trig., you will do poorly in this class (and other classes). We expect you to know;

The values of sine, cosine, and tangent at 30^0 , 45^0 , and 60^0 (without using a calculator)

Which one is sine, cosine, or tangent to a given triangle

Basic trig identities

$$\sin^2 \theta + \cos^2 \theta = 1$$

$$\sin (\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$$

$$\cos (\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$$

Laws of sine and cosine

Knowing these, you should be able to derive (not prove – if you don't know the difference, find out)

$$\sin(90^0 - \theta) = \cos \theta$$

$$\cos(90^0 - \theta) = \sin \theta$$

$$\sin (2\theta) = 2 \sin \theta \cos \theta$$

$$\cos (2\theta) = \cos^2 \theta - \sin^2 \theta = 2 \cos^2 \theta - 1 = 1 - 2 \sin^2 \theta$$

$$\sin^2 \theta = (1 - \cos (2\theta))/2$$

$$\cos^2 \theta = (1 + \cos (2\theta))/2$$

4. Basic differentiation and integration covered in Math 140