

## 1.1: Things to review

This course requires that you are comfortable with same basic mathematical operations and basic calculus. It is imperative that you go over this chapter carefully and identify the topics you may need to review before starting the semester. You will be too busy learning new concepts soon, so this is the right time for you to seek help if you need it.

Notice: This chapter does not contain a review of topics you should already know. Instead, it gives you a list of topics that you should be comfortable with so you can review them independently if needed. Also, remember that you can use the formula sheet at all times, so locate the information you have and use it whenever needed!

### 1.1.1 The Equation of a straight line

- given two points calculate the slope, the x-intercept and the y-intercept of the straight line through the points.
- given a graph of a straight line write its corresponding equation.
- given the equation of a straight line sketch the corresponding graph.

### 1.1.2 Trigonometric Functions

- definition of sin, cos, tan of an angle.
- values of the above trigonometric functions evaluated at  $0$ ,  $\pi/2$ ,  $\pi$ ,  $3/2\pi$ ,  $2\pi$ .
- derivatives and primitives of sin and cos.

### 1.1.3 Logarithms

- the natural logarithm (*[Math Processing Error]*) and its relationship with the exponential function.
- the decimal logarithm (*[Math Processing Error]*) and its relationship with the function *[Math Processing Error]*.
- properties of logarithms (natural and decimal)
  - *[Math Processing Error]*
  - *[Math Processing Error]*
  - *[Math Processing Error]*
  - *[Math Processing Error]*
  - *[Math Processing Error]*

### 1.1.4 The exponential function

- properties
  - *[Math Processing Error]*
  - *[Math Processing Error]*
  - *[Math Processing Error]*
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### 1.1.5 Derivatives

- concept of the derivative of a function in terms of the slope of the tangent line.
- derivative of a constant, *[Math Processing Error]*, *[Math Processing Error]*, *[Math Processing Error]*, *[Math Processing Error]* and *[Math Processing Error]*.
- derivative of the sum of two functions.
- derivative of the product of two functions.
- the chain rule.
- higher derivatives (second, third, etc).
- locating maxima, minima and inflection points.

### 1.1.6 Indefinite Integrals (Primitives)

- primitive of a constant, *[Math Processing Error]*, *[Math Processing Error]*, *[Math Processing Error]*, *[Math Processing Error]* and *[Math Processing Error]*.

### 1.1.7 Definite Integrals

- using limits of integration.
- properties of definite integrals (see recommended exercises below).

#### Test yourself!

Identify what you need to review by taking this non-graded quiz. <http://tinyurl.com/laq5aza>

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