MATH 152

Today

1. Intro, syllabus, website
2. Brief Calc I review
3. 9.1 Parametric Equations

Goals:

1. Go over logistics (Understand the course structure)
2. 9.1 Parametric Equations (Understand how to interpret and create parametric curves)

Where is today's material used?

1. Parametric equations can be used to describe curves for which y is not a function of x. The parameter is often time, t, in which case the parametric curve describes the behavior of something over time.

Chapter 9: Parametric Equations

1. A **parameter** is a variable on which the coordinate variables depend.
2. Important parametrizations:
   (a) Line: $x = at + b, y = ct + d$, $t \in \mathbb{R}$
   (b) Line segment from (x_0, y_0) to (x_1, y_1): $x = x_0 + (x_1 - x_0)t, y = y_0 + (y_1 - y_0)t$, $t \in [0, 1]$.
   (c) Circle of radius r centered at (a, b): $x = a + r\cos(t), y = b + r\sin(t)$, $t \in [0, 2\pi]$
3. Examples. p. 505: 10, 20, 22, 34 (Desmos), 31

Next Time

1. 9.2 Calculus on parametric curves
2. Turn in WeBWorK 9.1, Set01-Parametric Equation: None