Lessons 1 and 2

- Change between rectangular and polar coordinates
- Change between rectangular, cylindrical and spherical coordinates
- Equations of spheres and balls
- Add, subtract and scalar multiply vectors
- Find length of a vector

Lessons 3 and 4

- Find dot products and cross products of vectors
- Find angle between vectors
- Find vector and scalar projection of one vector on another
- Geometric interpretation of scalar triple product

Mth 254H - Winter 2013

2/7

Lessons 5 and 6

Mth 254H - Winter 2013

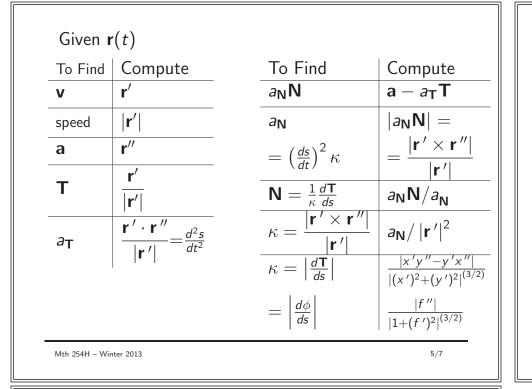
- Find vector, parametric and symmetric equations of lines
- Differentiate and Integrate vector valued functions
- Find Position, velocity and acceleration given one of these and initial conditions
- Find tangent line to a curve
- Two and three dimensional motion subject to gravitational field

Lessons 7 and 8

- Find arc length in rectangular or polar form
- Find **T**
- Find κ
- N
- Find tangential and normal components of acceleration

Mth 254H - Winter 2013

1/7



Lessons 9 and 10

- Find equations of planes
- Find angle between planes
- Find distance from point to plane and between two parallel planes
- Find traces of surfaces
- Find level curves and contour curves

Mth 254H - Winter 2013

6/7

Lessons 11 and 12

- Find limits of functions of two or three variables
- Determine when limits do not exist
- Determine points of continuity
- Find partial derivatives