Review for Math 2850
Thomas Calculus 12th ed.

1. **Section 12.6** Quadric Surfaces

2. **Section 13.1** Parametric curves $\vec{r}(t)$ and velocity and tangent lines and acceleration. Problem 22, Page 732.

3. **Section 13.2** Integrate $\int_a^b \vec{r}(t)\,dt$. Solve an initial value problem: Given $\vec{v}(t)$ and $\vec{r}(0)$, find $\vec{r}$. Problem 13, page 739.

4. **Section 13.3** Arclength. $\int_a^b |\vec{r}'(t)|\,dt$ (Formula Sheet.) Problem 5, page 745

5. **Section 13.4** Unit tangent vector $\vec{T}(t) = \vec{r}'(t)/|\vec{r}'(t)|$. Normal $\vec{N} = \vec{T}'(t)/|\vec{T}'(t)|$.

6. **Section 14.1** Functions of several variables. Level Curves and Contour Maps . Level Surfaces. Problem 51 or 55, 772,

7. **Section 14.2** Limits, Continuity. Problem 17, page 780

8. **Section 14.3** Partial Derivatives and Differentiability. Higher Order and Mixed Partials. Problem 46, page 791

9. **Section 14.4** Chain Rule Page 801, 43.

10. **Section 14.5** Directional Derivatives and Gradient. Page 808-809, 11-18.