

## Information pertaining to the Final Exam

The final exam is cumulative. Roughly speaking, half of the test will be on old material and half will be on new material. For the old material, the best first step is to review the old tests, solutions to which are available online. For further study, you could look over the review problems listed in the reviews for the previous tests.

The most important problems from Test I are 3, 4, 5, 6ac. The most important problems from Test II are 1, 2, 3. The most important problems from Test III are 1, 3abcd. Do not assume that because a problem is omitted from this list that something related to it will not appear on the final.

For the new material, you should know what a parametrized curve in space is, how to find its derivative and what that means, how to integrate it, how to find its arclength, how to find its curvature, how to find the TNB frame and the various planes associated to these vectors, and how to do applied problems involving projectile motion.

## Chapter 14 Review

Concept Check: #1-5, 6ab, 7-8.

True/False: #1-10.

Exercises: # 1-2bc, 5-6, 8-9, 11, 15, 17-20.

## Even Answers

T/F: #2-True; #4-True; #6-False; #8-False; #10-False.

$$\#2: \text{(b) } \langle \sqrt{2}, 1, 0 \rangle; \text{(c) } \left\langle -\frac{1}{2\sqrt{2-t}}, \frac{te^t - e^t + 1}{t^2}, \frac{1}{t+1} \right\rangle$$

$$\#6: \text{(a) } \left(\frac{15}{8}, 0, -\ln 2\right); \text{(b) } \mathbf{r}(t) = \langle 1 - 3t, 1 + 2t, t \rangle; \text{(c) } 3x - 2y - z = 1$$

$$\#8: L = \frac{2}{27}(13^{3/2} - 8)$$

$$\#18: \mathbf{r}(t) = \langle t^3 + t, t^4 - t, 3t - t^3 \rangle$$

$$\#20: a_T = \frac{4t}{\sqrt{4t^2 + 5}}; a_N = \frac{2\sqrt{5}}{\sqrt{4t^2 + 5}}$$