

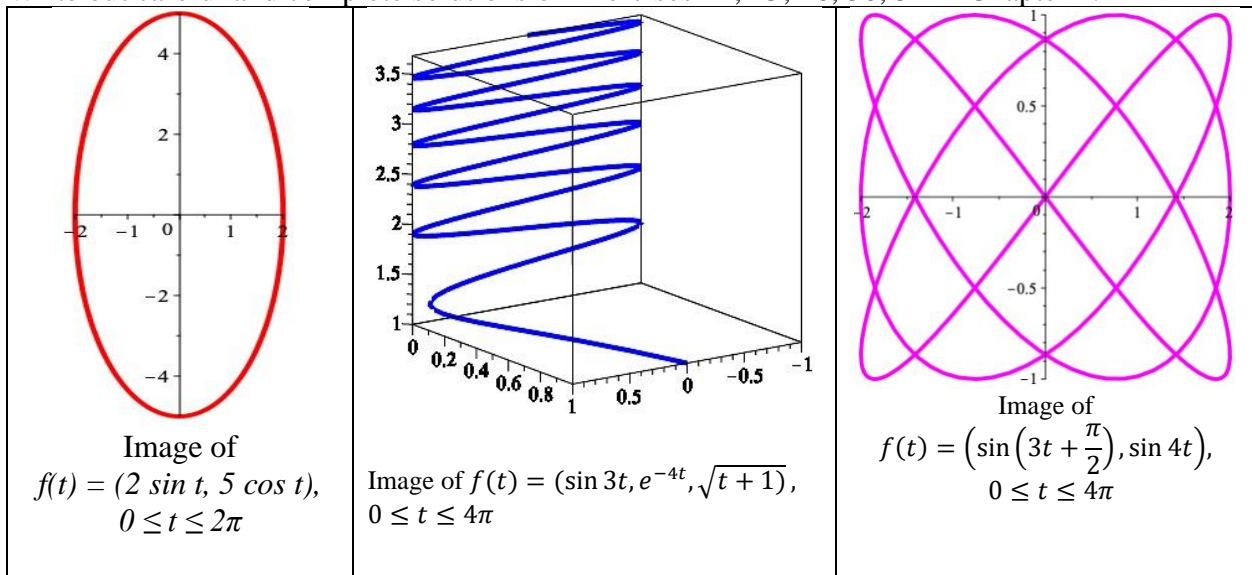
MATH 223 Fall 2023  
Assignment 3  
**Due: Monday, September 18**

**Reading**

Read carefully Sections 2.4 “Velocity, Speed and Acceleration,” Section 2.5 “Integrals,” and Subsection 2.6.1 “Projectile Motion” in our text *Multivariable Calculus: A Linear Algebra Based Approach*.

**Writing**

Write out careful and complete solutions of Exercises 21, 23, 26, 30, 31 in Chapter 2.



**Some Answers and Hints**

**21. (1):** There is a problem when  $t = 0$ . **(2)** Certain multiples of  $\pi/2$  may be troublesome. **(3)** What is the domain of the natural logarithm function? When are fractions undefined?

**23.** Show that the set satisfies the definition of a vector space. As for dimension, let  $n$  be a positive integer and consider the linear dependence or independence of the set of functions  $\{x^1, x^2, \dots, x^n\}$ .

**26.** Use ordinary rules of differentiation.