

Advanced Challenge Level 2 Problems

Level 2 advanced challenge problems are primarily designed for upper level math students. The first 11 problems are for precalculus students. The rest are for calculus students. These problems are designed to introduce or to reinforce concepts learned in class. These are not designed as group problems, although I do encourage student collaboration. I will highlight a few of the problems here. For example, in problem #1, the students are expected to develop the relationship that they will use to find the area of a triangle in terms of the measure of two sides and the included angle. This will lead to the law of sines. In problem #10, the students are given a graph showing the velocity of a moving point as a function of time. Using this, they answer questions concerning the distance the point moves. Problem 17 gives the students the formula for finding the average value of a function over a given closed interval. They then calculate the average value of several different functions and graph the functions. This problem can be used to introduce the concept prior to development in class or to reinforce the class work. Several of the problems involve related rates. Others involve using calculus to solve maximum or minimum problems. These problems are very challenging and require a high level of effort from the students. Enjoy