# Week 25 Pre-Calc Assignment:

Day 1: pp. 680-683 #7-29 odd, 37, 41, 45, 47, 49, 51, 55, 57
Day 2: pp. 686-689 #1-47 odd
Day 3: pp. 686-689 #49-77 odd, 95-123 odd
Day 4: Chapter 9 test
Day 5: pp. 704-706 # 1-5 odd, 9-15 odd, 9-25 odd, 37-41 odd, 45, 49-53 odd

## Notes on Assignment:

### Pages 680-683:

#11-19: Some of these are mutually exclusive events. You can treat them as such and add their probabilities, or you can the formula fraction for probability if you count all of the desired outcomes and put that number in the numerator.

#21-23: Treat these as independent events.

#41: The bottom of the fraction will be the number of ways that 10 questions can be chosen from 20 (order doesn't matter). The top will vary for each part.

#41c): "At least 9 right" means exactly 9 right or exactly 10 right. These are mutually exclusive events.

#47: These are independent events.

#49c): "At least 2 units are good" means that there are 2, 3, or 4 good units. These are mutually exclusive events.

#51b): The first number might be the odd or the $2^{nd}$ one might be the odd. Take both cases into account.

### Pages 686-689:

#5-7: Line up the terms with their corresponding value of $n$ and then find the pattern.

#19: Line up the terms with their corresponding value of $n$ and then find the pattern.

#25: This is an arithmetic sequence.

#41-43: Use the formula for these and not your calculator.

#45: Determine the formula for $a_n$. Then determine the 1st and last terms and use the formula.

#47: Make an arithmetic sequence from this.

#67-69: To find the $k$th partial sum of the sequence $a_n$, do the following on your calculator:

- Press [2nd][LIST] [MATH][sum( ] [2nd][LIST] [OPS][seq( ] $a_n, n, 1, k$)) [ENTER].

If you have the sequence already entered as u at the [Y=] screen (in SEQ mode), then you can do the following:

- Press [2nd][LIST] [MATH][sum( ] [2nd][LIST] [OPS][seq( ] u, $n, 1, k$)) [ENTER].

#77: At the end of year 1, the value would be $120,000(.70)^1$. At the end of year 2, the value would be $120,000(.70)^2$. Following this pattern, find the value of $a_n$.

#99-101: The 1st number, $n$, tells you which row of the triangle to look at. And remember that the 2nd number, $r$, is 1 less than the number of the term (eg. if the 2nd number is 8, then it is the 9th term.) You can also calculate the value directly if you want.

#103-107: Use ${}_nC_r$ to find your coefficients or just use Pascal's Triangle. Remember that the x in the theorem stands for the 1st term of your binomial and the y in the theorem stands for the 2nd term of your binomial. In #105, make sure that you include the negative sign with the 3b.

#109-115: Use the Fundamental Counting Principle. You may want to draw boxes for some of these as a help. Ask yourself whether order is important to see if it's a permutation or combination.

#117-123: You have to decide whether these are mutually exclusive events, independent events, or you just use the definition of probability.

#117: These are independent events. The probability of him picking the first sock is 1, since he can pick any sock. You could also think of this as 10/10. You need to find the probability that the 2nd sock matches the first sock.

## Chapter 9 test:

*You can use one 3x5 notecard on this test.

For the test:

- Write out the first 5 terms of a sequence given what $a_n$ equals.
- Write the expression for the *n*th term of a sequence if given the first 5 terms.
- Find the sum when given the sigma notation $3$.
- Write the first 5 terms of $a_n$ arithmetic sequence when given $a_1$ and *d*.
- Write the first 5 terms of $a_n$ arithmetic sequence when given $a_1$ and *r*.
- Find the formula for $a_n$ for an arithmetic sequence when given 2 terms of the sequence.
- Find the sum of a sequence using the sum formula.
- Find the sum of a sequence using a calculator.
- Find the sum of an infinite geometric series.
- Evaluate ${}_nC_r$ and ${}_nP_r$.
- Expand the power of a binomial using the Binomial Theorem and Pascal's Triangle.
- Use counting methods to determine combinations and permutations.
- Find probabilities of events.
- 1 extra credit problem.

## Pages 704-706:

#1-5: Use the formula for inclination and slope.

#9-13: Use the formula for inclination and slope. You can either do the problem twice, once in Degree mode and once in Radian mode, or you can do it once, and then convert your answer to the other measurement.

#15-17: Do these the same as #9-13, but you must find the slope first, using $\frac{\Delta y}{\Delta x}$.

#19-21: Do these the same as #9-13, but you must put the equation into slope-intercept form first to find the slope.

#23-25: Use the formula for the angle between 2 lines. Put the equation in slope-intercept form first to find slope.

#37-39: Use the formula for finding the distance between a point and a line. Make sure the equation is in the form Ax + By + C = 0 first.

#45a): Find the equation of the line AC first. Find the slope, and then use the slope and one of the points in the equation y = mx + b to find b. Substitute m and b in to get

the slope-intercept form of your line. Then find the distance from point B to AC using the formula.

#45b): Find the length of AC using the distance formula. Then find the area of the triangle using the formula for area. ($A = \frac{1}{2} bh$)

#49: Find any point on one of the lines by putting a value in for x and finding the corresponding y. Use that point and the equation for the other line to find the distance between the point and the line. This will also be the distance between the 2 lines.

#51: Use the inclination and slope formula to find the slope. Then, use the right triangle and trig to find the change of elevation, which is the height of the triangle.

#53a): Use the rise and run given to find the slope. Then find $\theta$ using the inclination and slope formula.

#53b): You have a right triangle in which you know the angle and the height. Solve for the hypotenuse (which is the length of the belt) using trig.