Week 24 Pre-Calc Assignment:

Day 1: pp. 659-661 #1-35 odd
Day 2: pp. 659-661 #37-57 odd, 63-67 odd, 89, 93-97 odd
Day 3: pp. 669-671 #1-41 odd
Day 4: pp. 669-671 #45-59 odd, 67, 79-89 odd

Notes on Assignment:

Pages 659-661:

#1-9: $\binom{n}{r} = {}_nC_r = \dfrac{n!}{(n-r)!r!}$

#11-13: 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.)

#15-33: Use ${}_nC_r$ to find your coefficients but check them by 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.

#33: You will have to use the Binomial Theorem twice, multiply the first result by 2 and the 2nd result by 5. Then add both polynomials together.

#39-45: Don't confuse the n the directions with the n in the Binomial Theorem. Whatever term you are finding, remember that r is 1 less than that. Find r first, then put all of your known information into ${}_nC_r x^{n-r} y^r$ to find the term.

#47-53: Each term is of the form ${}_nC_r x^{n-r} y^r$. Compare your term with the formula to figure out what n and r equal. Put all of your known information into the formula to find the term. Then list the coefficient as your answer.

#55-57: These are done the same as #15-37, but be careful!

#63-67: These are done the same as #15-37, but you will need to change any i^2 to (-1).

#89: Write both sides out in their factorial notation and show that both sides are equal.

#93-95: Graph these both on your calculator. You will be looking at vertical and horizontal shifts of f(x) to get g(x).

#97: You can use your calculator or the shortcut formula.

Pages 669-671:

#1-7: Do these without any formula. List the numbers from 1 to 12 and decide how many fit the criteria asked for.

#9-23: These involve the Fundamental Counting Principle. I would suggest making boxes to see what you have to multiply. For each box, ask "How many ways can this event occur?" or "How many choices do I have for this event?"

#19: This is 4 separate problems. Again, I suggest making boxes.

#31: Using the formula for ${}_nP_r$ you need to expand ${}_nP_3$ and ${}_{n+2}P_4$. Then write out enough of the factorials to see what will cancel on the top and bottom. Then, divide both sides by any common factors to get rid of them. What is left, when multiplied out, should be a quadratic equation.

#33-35: To find ${}_nP_r$ on your calculator, type in the value of n on your main screen. Then press [MATH] [PRB] [nPr] and type in the value of r on your main screen. Press [ENTER].

#37: Use the same procedure as above, but choose [nCr] instead of [nPr].

#39-41: Count how many times a letter is repeated and divide your n! by each of these factorials. For example, if one letter is duplicated 3 times and another 2 times, divide your n! by 2!3!.

#47-59: You have to decide whether these are permutations, combinations, or just counting. See the study tip on p. 667. Some may be done with boxes if that helps you visualize. (Combinations are not usually done with boxes).

#67a): Powerball numbers means the combination of the 5 white balls and 1 red ball.

#87-89: Use Pascal's triangle to find the coefficients, and then the patterns in Binomial Theorem for the rest. 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.