Approximating π^n:

A. Approximating powers of π is actually quite simple. For this page, there will be two types of approximations:

1. This approximation only works for powers up to 6 (just for the even powers. The odd powers can go up as high as you need.)

π^1	3	π^2	10
π^3	30	π^4	100
π^5	300	π^6	1000
π^7	3000		

Note: Use this chart if you have to solve expressions.

2. This approximation works for A LOT of powers of n. Use this chart if asked only for π^n:

π^1	3	π^2	9.4
π^3	30	π^4	94
π^5	300	π^6	940
π^7	3000	π^8	9400
π^9	30000	π^{10}	94000
π^{11}	300000	π^{12}	940000
π^{13}	3000000	π^{14}	940000

etc...

a. I am sure you can see the pattern, but if you need help remembering:

1. If n is odd: Write $3 + {}^{(n-1)}/_2$ zero's.
2. If n is even: Write $94 + ({}^n/_2 - 2)$ zero's.

C. Here are a few examples:

        Ex [1] $\pi^8 = $ _____.

           a. Since 8 is even the approximate answer is 9400.

           b. Note: Most problems will be of this type.

        Ex [2] $(3\pi)^6 = $ _____.

           a. This time use the first table or $\pi^6 = 1000$.

           b. $3^6 = 729$.

           c. 729 x 1000 = 729000.

           d. The answer can be between: 665810 and 735895.