Graphing Radical Functions

A radical function generally looks like this:

$$f(x) = A\sqrt[n]{Bx + C} + D$$

Our questions are these:

1] What value of x makes the argument of the radical equal 0?

A] If n is even, this is an endpoint with a y-value of D.

B] If n is odd, this is a point of inflection [POI] with a y-value of D.

2] What is the y-intercept? Set x equal to zero and solve for y.

3] Where is the x-intercept? Set y equal to zero and solve for x.

Example:

$$f(x) = 3\sqrt[5]{2x + 32} + 1$$

1 2x + 32 = 0 when x = -16. So there is a P.O.I. at (16, 1).

2 y-int at $f(x) = 3\sqrt[5]{32} + 1 = 3(2) + 1 = 7$, or (0, 7).

$$0 = 3\sqrt[5]{2x + 32} + 1$$

$$-\frac{1}{3} = \sqrt[5]{2x + 32}$$

3 x-int at $-\frac{1}{243} = 2x + 32$

$$-32\frac{1}{243} = 2x$$

$$x = -16\frac{1}{486}$$