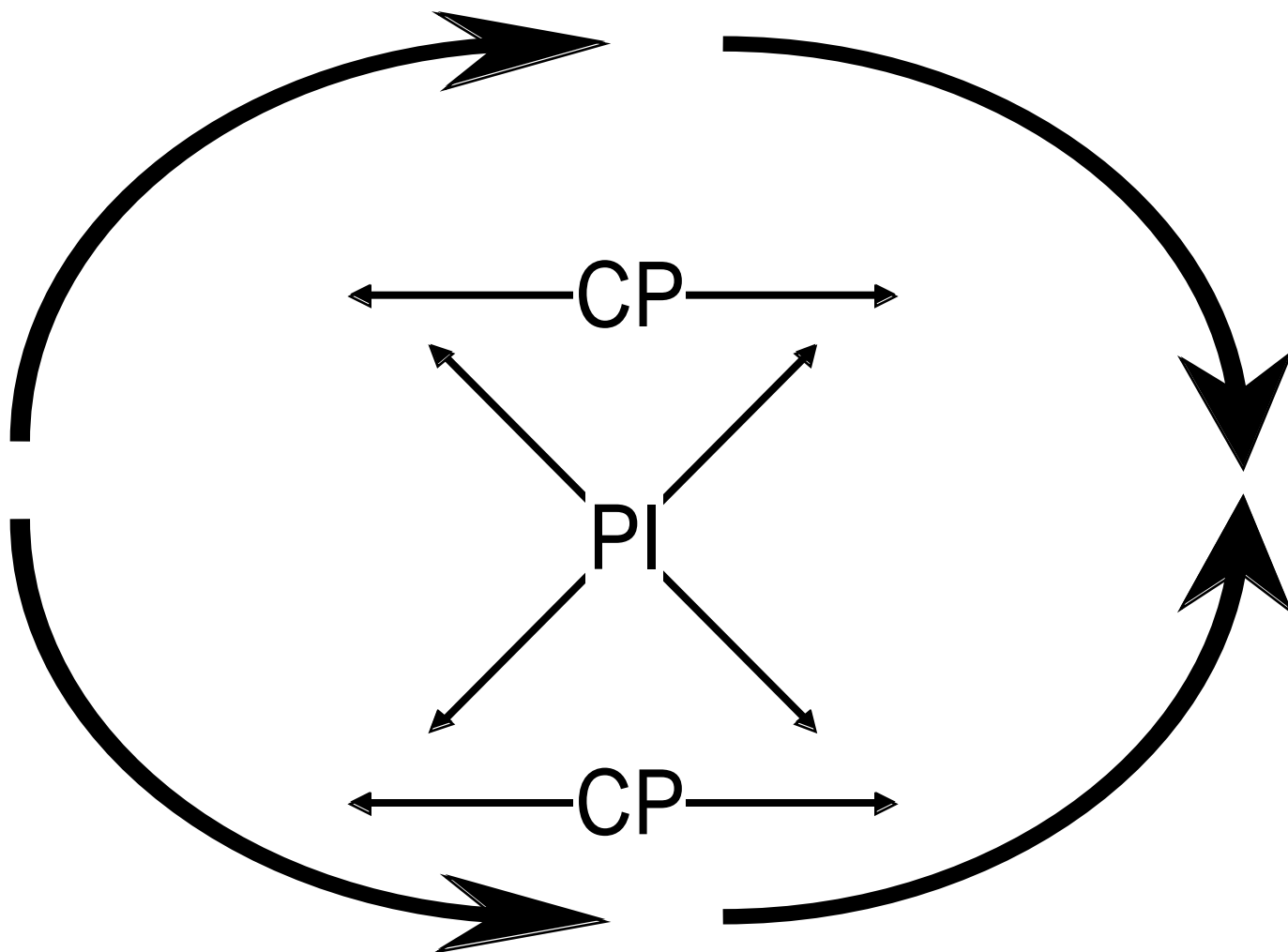


# CURVE CALCULATOR



## DIRECTIONS:

**Step 1:** Plot all Critical Points (CP) ( $f'(x)=0$  or DNE), Points of Inflection (PI) ( $f''(x)=0$  or DNE), and vertical asymptotes (VA) on a coordinate system. Moving in the positive  $x$  direction, establish testing intervals between CP's, PI's and VA's from  $(-\infty, +\infty)$  on a rectangular coordinate system.

**Step 2:** If VA's exist, use factor analysis or test the function on both sides of the VA to determine whether the function's tendency or concavity changes across that VA. If the curve's tendency changes across the VA, then treat the VA as a CP on the Curve Calculator™. If the curve's concavity changes across the VA, then treat the VA as a PI on the Curve Calculator™.

**Step 3:** Determine the tendency and concavity of the curve within the first testing interval (first CP, PI, VA) and sketch it on coordinate system.

**Step 4:** Find the shape drawn in step 2 on the Curve Calculator™.

**Step 5:** If the 1st interval ends with a CP, move horizontally across the above diagram to determine the shape of the curve for the 2nd testing interval. If 1st interval ends with a PL, then move diagonally across the Curve Calculator™ to determine the shape of the curve for the 2nd testing interval. If 1st interval ends with a VA, then move either horizontally or diagonally across the Curve Calculator™ depending upon whether the VA was to be treated as a CP or PI (see step 2). If the point is both a CP and PI, move across diagonally then horizontally or visa versa to establish the next interval's curve shape.

**Step 6:** Draw the section of curve determined by the Curve Calculator™ for the next interval. Repeat the process outlined in Step 5 for consecutive testing intervals on your coordinate system. Continue the process of following the Curve Calculator's™ determination of curve shapes throughout all testing intervals.