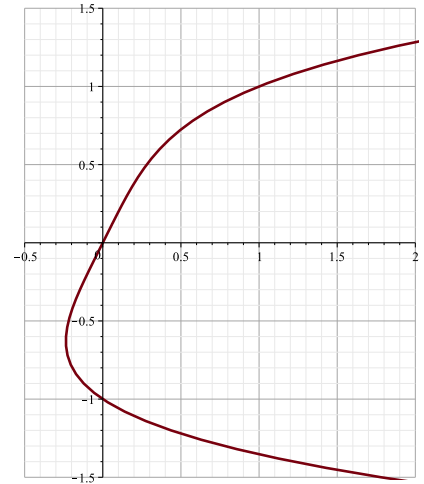


MAT125, Paper Homework “Appx”

1. Observe that $(1, 1)$ lies on the curve satisfying $y^4 + y = 2x$, which has the graph shown at right.

Use the tangent line at $x = 1, y = 1$ to approximate the y -value of a point on the curve with $x = 1.2$.

Is your approximation too large or too small?



2. When blood flows along a blood vessel, the volume of blood flowing past a given point per unit time (the *flux*) is proportional to the fourth power of the radius R of the blood vessel, that is $F = kR^4$, for a constant k depending on the blood pressure, length of the vessel, and blood viscosity. This relationship is called *Poiseuille's Law*. An [angioplasty](#) can expand a partially clogged artery widening it near the blockage.

If an angioplasty increases the radius of a blood vessel by 5%, what will be the approximate relative increase (as a percentage) in blood flow?