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% !TEX encoding = UTF-8 Unicode
% !TEX program = pdflatex
\documentclass{article}
\usepackage{tikz}
\begin{document}
\begin{tikzpicture}
\draw[gray, ->] (-5, 0) -- (4, 0) node[below]{$x$ axis};
\draw[gray, ->] (0, -5) -- (0, 2) node[above]{$y$ axis};
\def\alpha{1.21} \def\beta{-25.6} \def\gamma{36.1} \def\delta{67.8}
\pgfmathdeclarefunction{f}{1}{\pgfmathparse{
((\x)^4 + \alpha_\star(\x)^3 + \beta_\star(\x)^2 + \gamma_\star(\x) + \delta)/69}}
\pgfmathdeclarefunction{dfdx}{1}{\pgfmathparse{
(4_\star(\x)^3 + 3_\star\alpha_\star(\x)^2 + 2_\star\beta_\star(\x) + \gamma)/69}}
\draw [line width=1pt] plot
[variable = \t, domain = -5:4, samples = 100] ({\t}, {f(\t)});
\pgfmathsetmacro\x{0.321} \pgfmathsetmacro\quo{f(\x)/dfdx(\x)}
\draw [cyan] ({\x}, 0) circle [radius = 1pt]
-- ({\x}, {f(\x)}) circle [radius = 1pt]
node [above right] {$(x_0, f(x_0))$}
-- ({\x} - \quo, {0});
\pgfmathsetmacro\x{{\x} - \quo} \pgfmathsetmacro\quo{f(\x)/dfdx(\x)}
\draw [violet] ({\x}, {0}) circle [radius = 1pt]
-- ({\x}, {f(\x)}) circle [radius = 1pt]
node [below right] {$(x_1, f(x_1))$}
-- ({\x} - \quo, {0});
\pgfmathsetmacro\x{{\x} - \quo} \pgfmathsetmacro\quo{f(\x)/dfdx(\x)}
\draw [magenta] ({\x}, {0}) circle [radius = 1pt]
-- ({\x}, {f(\x)}) circle [radius = 1pt]
node [above left] {$(x_2, f(x_2))$}
-- ({\x} - \quo, {0});
\pgfmathsetmacro\x{{\x} - \quo} \pgfmathsetmacro\quo{f(\x)/dfdx(\x)}
\draw [orange] ({\x}, {0}) circle [radius = 1pt]
-- ({\x}, {f(\x)}) circle [radius = 1pt]
node [left] {$(x_3, f(x_3))$}
-- ({\x} - \quo, {0});
\end{tikzpicture}
\end{document}
```