Calculus Worksheet

# Instructions

Solve the following problems. Provide your answers using proper notation and show your work for full credit.

# Problems

* 1. Find the limit: $lim\_{x\rightarrow 2}(3x^{2}−2x+5)$
	2. Evaluate the derivative: $\frac{d}{dx}(7x^{3}−2x^{2}+4x−7)$
	3. Determine the critical points of the function: $f(x)=x^{3}−6x^{2}+9x+2$
	4. Determine if the critical points are maximum, minimum, or saddle points.
	5. Find the indefinite integral: $∫(2x^{2}−3x+4)dx$
	6. Evaluate the definite integral: $\int\_{0}^{3}(x^{2}−4x+5)dx$
1. Find the arc length of the curve given by the parametric equations: $x(t)=2t^{2}$, $y(t)=t^{3}$, for $0\leq t\leq 1$.
2. Determine the convergence or divergence of the series: $\sum\_{n=1}^{\infty }\frac{1}{n^{3}}$