

Math 30 – Workshop #28

1. Integrate.

(a) $\int 3x^2 \cos(x^3) dx$

(b) $\int xe^{x^2} dx$

2. A car, traveling at 30 feet per second, crosses a bridge over a canal 10 seconds before a boat, traveling at 12 feet per second, passes under the bridge. The canal and the road are straight and perpendicular to each other. At what rate are the car and boat separating 10 seconds after the boat passes under the bridge?
3. Consider the function $f(x) = \ln(1 + x^2)$. Without using your calculator, do the following.
- (a) Identify all local maxima and minima.
 - (b) Determine where the graph is concave upward.
 - (c) Find all inflection points for the graph.
4. Find the maximum and minimum values for $f(x) = x^{\frac{2}{3}}$ on $[-4, 1]$.