MATH 115 — FIRST MIDTERM EXAM SOLUTIONS

1. (2 points each) Circle "True" or "False" for each of the following problems. Circle "True" only is the statement is *always* true. No explanation is necessary.

(a) $\log(\frac{1}{A}) = -\log(A)$.

TRUE False

(b) If $f(x) = \pi^5$, then $f'(x) = 5\pi^4$.

True FALSE

(c) The function $y = \frac{a}{b+ce^{-kt}}$ for $k > 0$ and a, b, c constants has a horizontal asymptote of $y = \frac{a}{c}$.

True FALSE

(d) A degree 7 polynomial must have at least 1 real root but can not have more than 7 real roots.

TRUE False

(e) $f'(a)$ is the tangent line of f at the point $(a, f(a))$.

True FALSE

(f) If $f(x) = x^2$, then $f^{-1}(x) = \frac{1}{x^2}$.

True FALSE

(g) Note: This problem was excluded from grading. If $f''(a) = 0$, then the point $(a, f(a))$ is an inflection point of f.

True FALSE