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

(a) If A and B are positive constants, then the function $f(x) = \log(|Ax + B|)$ has a vertical asymptote at $x = -B/A$.

<div align="center">True   False</div>

(b) If an exponential function of t, in years, has decreased to 60% of the original value in two years, in four years it will decrease to 30% of the original value.

<div align="center">True   False</div>

(c) If $h(x) = 1.3(0.5)^x$ then the derivative, h', is decreasing for all x.

<div align="center">True   False</div>

(d) The functions $\sin(e^x)$ and $e^{\sin(x)}$ are inverses of each other.

<div align="center">True   False</div>

(e) If w is a continuous function for all x, then $\displaystyle\lim_{h \to 0} \frac{w(x + h) - w(x)}{h}$ exists for all x.

<div align="center">True   False</div>

(f) If $f''(x) > 0$ on the interval $[a, b]$, then the average rate of change of $f(x)$ on the interval $[a, b]$ is greater than $f'(x)$ for all $a < x < b$.

<div align="center">True   False</div>