

Math 124 - True/False practice

NOTE: A statement is true only if it is true for every possible case in the statement.

1. A rational function always has at least one vertical asymptote.
2. The units of f and f' are the same.
- 3 $(f + g)' = f' + g'$
4. If the acceleration of an object is constant, then its position function is a linear function.
5. If $f''(p) = 0$, then p is an inflection point.
6. If $f(x)$ is defined on $[0, 1]$, then 0 must be either a local min or local max of f .
- 7.

$$\frac{d}{dx}f^{-1}(x) = \frac{1}{f'(x)}$$

8. If $f'(x)$ is constant on some interval, then f is a linear function on that interval.
9. If $f'(x)$ is zero on some interval, then f is zero on that interval.
10. If p is a local min of f , then $f'(p) = 0$.
11. If p is a global max of f on some interval, then p is a local max of f .
12. If $c > 0$, the graph of $f(x + c)$ is the graph of $f(x)$ shifted to the right by c .
13. $\sin(x^2)$ is a periodic function
14. For all $a > 0$, the function a^x is concave up.
15. If $f'(x)$ is zero on $(0, 2)$ and $f(1) = 0$, then $f(x) = 0$ on the interval.
16. For $a > 0$, the period of $\sin(ax)$ increases as a increases.
17. Every function has a point where its value is equal to its global max.
18. If $f(x)$ is defined on $[0, \infty)$, then the global min of f will always occur as $x \rightarrow \infty$.

19.

$$\lim_{x \rightarrow 0} \frac{f(x)}{g(x)} = \lim_{x \rightarrow 0} \frac{f'(x)}{g'(x)}$$

20. If $f(x)$ is always positive, then $\int_a^b f(x) dx$ is positive.

21. If $\int_0^1 f(x) dx = 0$, then $f(x) = 0$ on $[0, 1]$.

22.

$$\int_0^{2a} f(x) dx = 2 \int_0^a f(x) dx$$

23. If $f'(x) = e^x$, then $f(x) = e^x$.

24. If $f'(x)$ is a polynomial, then $f(x)$ is a polynomial.

25. A differentiable function is continuous.

26. $(fg)' = f'g'$

27. If $\int_0^x f(t) dt = 0$, for all x , then $f(x) = 0$ for all x .