

Math 156: Diagnostic

Name: _____

Instructions: For each of the following statements, determine whether it is true or false. Circle your answer. If false, provide a counterexample. If true, you don't need to write anything extra.

1. $f(x + h) = f(x) + f(h)$ True or False

2. $\sin(x + y) = \sin(x) + \sin(y)$ True or False

3. $\sin(xy) = \sin(x) \sin(y)$ True or False

4. $\sqrt{x^2 + y^2} = x + y$ True or False

5. $(x + y)^2 = x^2 + y^2$ True or False

6. $a^m \cdot a^n = a^{m+n}$ True or False

7. $(a^m)^n = a^{m+n}$

True or False

8. $\sqrt{x^2} = x$

True or False

9. $\frac{a+x}{b+x} = \frac{a}{b}$

True or False

10. $-x < 0$

True or False

11. A square is a rectangle.

True or False

12. If $7 < |x + 11| < 13$, then $\frac{1}{7} < \frac{1}{|x+11|} < \frac{1}{13}$.

True or False

13. $|x + y| = |x| + |y|$

True or False