Math 1316: 1-27 Worksheet

January 27, 2022

1. A right triangle with angle α has sides of length 5, 12, and 13, where the side of length 5 is opposite α. Determine α.

2. A right triangle has a leg of length 10. If the triangle has area 40, determine all angles of the triangle.

3. A right triangle has area 30. Can you use this information to find all angles of the triangle? If yes, find them. If no, find two right triangles with different angles which both have area 30.

4. Consider a right triangle with angle α. The leg adjacent to α has length 1, and the hypotenuse has length x, where x is a constant. Find $\sin\alpha$, $\cos\alpha$, and $\tan\alpha$.

5. Simplify the expression $\sin(\arctan\sqrt{x^2-1})$ to not include any trig functions.