Math 1316: 1-25 Worksheet

January 25, 2022

1. A right triangle with angle α has legs of length 3 and 5. Find all six trig functions of α.

2. A right triangle with angle 20° has a hypotenuse of length 7. Find the lengths of both other sides of the triangle, and use those to determine its area.

3. A parallelogram has sides of length 4 and 6, meeting an angle of 30°, as in the below picture. Determine the area of the parallelogram. [Hint: remember that the area of a parallelogram is its width multiplied by its height.]

4. Consider two angles α and β, which are each between 0° and 90° and where $\alpha + \beta = 90^\circ$. Explain why the following six equalities are true:

$$\sin\alpha = \cos\beta$$
$$\cos\alpha = \sin\beta$$
$$\tan\alpha = \cot\beta$$
$$\cot\alpha = \tan\beta$$
$$\sec\alpha = \csc\beta$$
$$\csc\alpha = \sec\beta$$