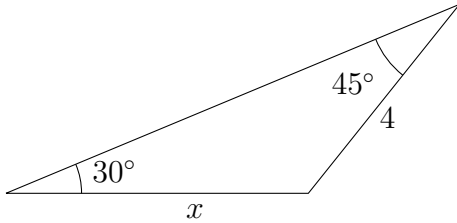


Show work for the first 5 problems; use the back of the sheet if necessary. Results should, when necessary, be left in the form of unsimplified square roots.

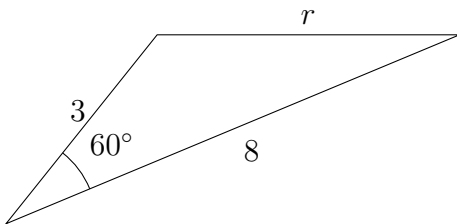
1. (3 points) In the following triangle (not drawn to scale), find the value of x .



2. (4 points) Simplify $\cot \operatorname{arcsec}(x)$ into a form which does not use any trigonometric functions.

3. (3 points) Evaluate $\cos 15^\circ \cos 45^\circ - \sin 15^\circ \sin 45^\circ$.

4. (4 points) In the following triangle (not drawn to scale), find the value of r .



5. (4 points) Verify the trigonometric identity $\frac{\cos x}{\sec x \sin x} = \csc x - \sin x$.

6. (2 points) Evaluate $\arctan(-\sqrt{3})$.