Given right triangle ABC with $a = 12$ and $b = 5$.
Find the exact value of:

10. $\cos 2A$

9. $\tan 2A$

8. $\sin 2A$

7. $\cos \frac{A}{2}$

6. $\sin \frac{A}{2}$

5. Given $\sin u \cos v = \frac{1}{2} [\sin(u + v) + \sin(u - v)]$, rewrite $4 \sin \frac{\pi}{4} \cos \frac{5\pi}{13}$ as a sum or difference.

4. Verify the identity: $\sec 2\theta = \frac{\sec^2 \theta}{2 - \sec^2 \theta}$

3. Solve the triangle ABC given: $A = 60^\circ$, $a = 9$, and $c = 10$.

2. Find a value for $b$ such that the triangle ABC with $A = 60^\circ$ and $a = 10$ has
   a. 1 solution
   b. 2 solutions
   c. no solutions

1. Two ships leave a port at 9am. One travels at a bearing of N53°W att 10 mph and the other travels at a bearing of S67°W at 18 mph. Approximate how far apart they are at noon that day.