Math 150 Week in Review 9 Answer Key

1. \( A = \cos^{-1} \left( -\frac{2}{7} \right) \approx 106.6015^\circ, B \approx 48.1897^\circ, C \approx 25.2088^\circ \)

2. (a) \( \sqrt{5^2 + 3^2 - 2(5)(3)} \cos 107^\circ \) miles \( \approx 6.5400 \) miles
   (b) \( S 38.0190^\circ \) E

3. \( \cos u \)

4. \( 4 \tan \theta \sin \theta \)

5. (a) \( -\frac{\sqrt{2} - \sqrt{6}}{4} = -\frac{1 - \sqrt{3}}{2\sqrt{2}} \)
   (b) \( -\frac{\sqrt{2} - \sqrt{6}}{4} = -\frac{1 - \sqrt{3}}{2\sqrt{2}} \)
   (c) \( \frac{1}{2} \)

6. \( \sin 2x = -\frac{4\sqrt{5}}{9}; \cos 2x = \frac{1}{5}; \tan 2x = -4\sqrt{5} \)

7. \( \frac{\sqrt{2} + \sqrt{3}}{2} \)

8. \( \sin \frac{x}{2} = \sqrt{\frac{1 + \frac{2}{\sqrt{29}}}{2}}; \cos \frac{x}{2} = -\sqrt{\frac{1 - \frac{2}{\sqrt{29}}}{2}}; \tan \frac{x}{2} = \frac{2 + \sqrt{29}}{-5} \)

9. \( \frac{1}{\sqrt{2}} \)

10. \( -\frac{1}{4} + \frac{1}{2\sqrt{2}} \)

11. See Full Solutions for all parts.

12. Area = \( \sqrt{264} = 2\sqrt{66} \approx 16.2481 \)

13. \( 4 \sin(x + \frac{\pi}{3}) \)