1. A regular pentagon is inscribed in a circle of radius 4 in. Find the area of the pentagon.

1.) ___________________

2. Observers at points A and B, 30 km apart, sight an airplane between them at angles of elevation of 40° and 75°, respectively. How far is the plane from each observer?

2.) ___________________

3. Two hikers follow a trail that splits into two forks. Each hiker takes a different fork. The forks diverge at an angle of 67° and both hikers walk at a speed of 3.5 mph. How far apart are the hikers after 1 hour?

3.) ___________________

4. After leaving an airport, a plane flies for 1.5 hours at a speed of 200 km/h on a course of 200°. Then, on a course of 340°, the plane flies for 2 hours at a speed of 250 km/h. At this time, how far from the airport is the plane?

4.) ___________________

5. An airplane flies on a course of 130° at a speed of 1100 km/h. How far east of its starting point is it after 3 hours?

5.) ___________________
6. One angle of an isosceles triangle has a measure of $150^\circ$. If the area of the triangle is $9 \text{ cm}^2$, what is the perimeter of the triangle?

6.) __________________

7. A ship leaves port and proceeds west 30 miles. It then changes course to $020^\circ$ until it is due north of its origin. How far north of its origin is it?

7.) __________________

8. The area of $\triangle ABC$ is 45 square units. If $a = 10$ and $b = 15$, find the measure of angle $C$ to the nearest degree.

8.) __________________

9. Given the diagram below, find $ZN$ to the nearest whole unit.

9.) __________________

Answers: 1. 38.0 in$^2$  2. 32.0 km from A and 21.3 km from B  3. 3.86 miles  4. 332 km  5. 2527.9 km  6. 23.6 cm  7. 82.4 miles  8. $37^\circ$ or $143^\circ$  9. 5