

1. 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?

1.) _____

2. One angle of an isosceles triangle has a measure of 150° . If the area of the triangle is 9 cm^2 , what is the perimeter of the triangle?

2.) _____

3. A ship leaves port and proceeds west 30 miles. It then changes course to 020° until it is due north of its origin. How far north of its origin is it?

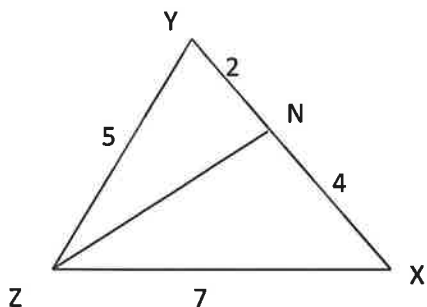
3.) _____

4. 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.

4.) _____

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

5.) _____



6. Solve $\triangle XYZ$ if $x = 52$, $y = 70$ and $z = 100$.

6.) _____

7. Solve $\triangle XYZ$ and find its area if $\angle X = 52^\circ$, $\angle Y = 70^\circ$, and $z = 100$.

7.) _____

8. Solve $\triangle XYZ$ and find its area if $\angle X = 52^\circ$, $y = 70$, and $x = 100$.

8.) _____

9. Eli Cooley flew his plane 900 km north, turned 15° , and flew 1150 km. How far is Mr. Cooley from his starting point?

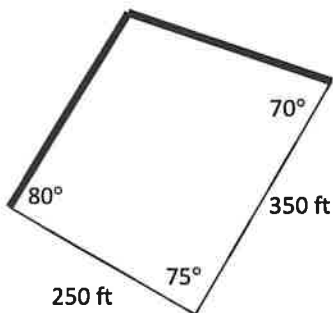
9.) _____

10. The angle of elevation to the peak of a mountain is 30° . A kilometer closer, the angle of elevation is 35° . Find the height of the mountain.

10.) _____

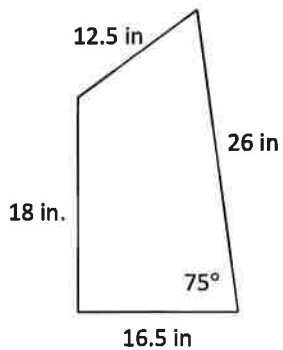
11. A lakefront plot of land is shown below. What is its area and lakefront footage (bolded sides are lakefront footage)?

11.) _____



12. The diagram shows the dimensions for a sail on a wooden model ship. Find the area of the sail to the nearest square inch.

[The angle at the bottom left is NOT a right angle!]



12.) _____

13. A ship leaves port and travels 36 miles west, then 24 miles on a course bearing 213° . How far is it from its starting point?

13.) _____

14. A hiker walks 8000 m on a course of $S 81^\circ E$. She then changes direction and hikes 5000 m on a course of $N 32^\circ W$. How far is she from her starting point, and on what course must she travel to return to the starting point?

14.) _____

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

15.) _____

16. 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?

16.) _____

17. 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?

17.) _____

18. 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?

18.) _____

1. 2527.9 km 2. 23.6 cm 3. 82.4 miles 4. 36.9° or 143.1° 5. 5.0 6. $\angle X = 29.4^\circ$, $\angle Y = 41.4^\circ$, $\angle Z = 109.2^\circ$
7. $x = 92.9$, $y = 110.8$, $\angle Z = 58^\circ$, $AREA = 4364.9$ 8. $\angle Y = 33.5^\circ$, $\angle Z = 94.5^\circ$, $z = 126.5$, $AREA = 3489.2$ 9. 2032.7 km
10. 3.3 km 11. Area = 55,132.21 ft², lakefront footage = 401.3 ft 12. 301.8 in² 13. 53.04 miles
14. 6042.8 m, bearing of 240° or $S 60^\circ W$ 15. 38.04 in² 16. 31.97 km from A and 21.3 km from B 17. 3.86 miles 18. 331.9 km