Trigonometry Worksheet 9 - Answers

1. To the nearest tenth, solve $\triangle ABC$ where $AB = 183$, $\angle B = 12°$, and $\angle C = 136°$.
   $AB = 183$, $BC = 140.6$, $AC = 55.7$, $\angle A = 32°$, $\angle B = 12°$, and $\angle C = 136°$.

2. To the nearest tenth, solve $\triangle DEF$ where $DE = 38.6$, $EF = 14.2$, and $\angle E = 21°$.
   $DE = 38.6$, $EF = 14.2$, $DF = 25.9$, $\angle D = 11.4°$, $\angle E = 21°$, and $\angle F = 32.4°$.

3. After flying 520 miles, a navigator notices that his plane headed from Chicago to Las Vegas, a 1525 mile course, has veered 5° off course due to heavy high-level winds. To the nearest hundredth of a mile, how far is the plane from Las Vegas when the navigator notices the situation?
   1028.40 miles

4. On one portion of the return flight (from Las Vegas back to Chicago), the plane flies at 320 miles per hour. The wind is blowing from the southeast at a speed of 75 miles per hour with a bearing of 300°. At what bearing must the plane head in order to have a true bearing of 18°, and what will its ground speed be?
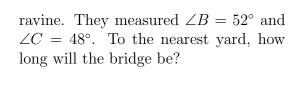   327.1 miles per hour, a bearing of 31.3°

5. The sides of a rhombus have length 20, and the diagonal opposite the obtuse angles has length 35. To the nearest degree, what is the measure of the ob-

tuse angle?
122°

6. Connie the Constructor is framing up the roof of her new doghouse. She lays out three 2×4's with lengths 26 inches, 29 inches, and 38 inches to create the frame. To the nearest degree, what is the measure of the angle between the 29-inch and 38-inch boards?
137°

7. $\triangle DEF$ has adjacent sides of lengths 10 and 10 and an angle of 60° that is not included. What is the area of the triangle?
$25\sqrt{3} \approx 43.3$ units^2.

8. A city park is being built in the shape of a 45-60-75 triangle. The side opposite the 45° angle is 150 yards long. To the nearest yard, how long is the side opposite the 60° angle?
184 yards

9. The tree growing in Brooklyn is situated on a hill that rises at a steady 9° incline. On one special day every year, the sun rises between the buildings, illuminating the tree's blossoming branches. When the sun reaches a 12° angle of elevation, the tree's shadow reaches 170 meters. To the nearest meter, how tall is the tree?
9 meters

10. Surveyors preparing to build a bridge $\overline{AB}$ across a ravine laid out the distance $BC = 36$ yards along one side of the

ravine. They measured $\angle B = 52°$ and $\angle C = 48°$. To the nearest yard, how long will the bridge be?

2.2 kilometers