Handout 4: The Laws of the Land
Answers

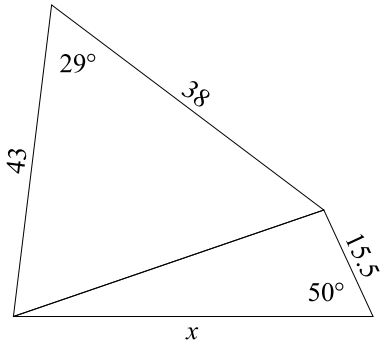

Figure 1

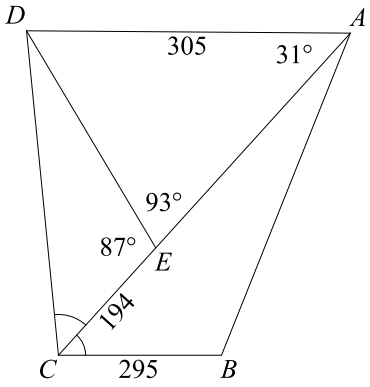

Figure 2

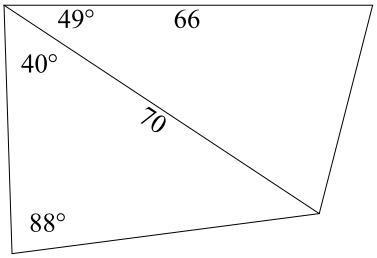

Figure 3

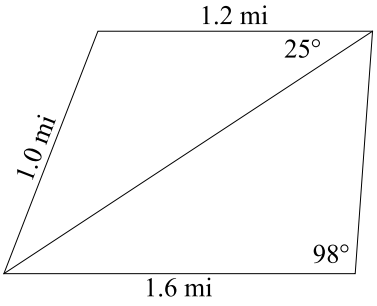

Figure 4

1. In ΔQRS, $\angle Q = 47°$ and $\angle R = 101°$. If side $q = 5.2$, find side r to the nearest tenth.
   $r \approx 7.0$.

2. In ΔDEF, $d = 24$ and $e = 17$. If $\angle D = 65°$, find $\angle E$ to the nearest tenth of a degree.
   $\angle E \approx 39.9°$.

3. The three sides of a triangle are 7, 9, and 11. Find all the angles in the triangle.
   39.4°, 54.7°, and 85.9°.

4. Solve the triangle ΔABC to the nearest tenth if $\angle A = 62°$, $c = 9$, and $b = 14$.
   $a \approx 12.6$; $b = 14$; $c = 9$; $\angle B \approx 78.8°$; $\angle C \approx 39.2°$.

5. Find the value of x in Figure 1, to the nearest tenth.
   27.1.

6. Find the perimeter of the quadrilateral $ABCD$ in Figure 2, to the nearest whole number.

   1136.

7. Does the Law of Sines work for all triangles? If not, why not?

   Yes.

8. What happens to the Law of Cosines with right triangles? Why?

   It becomes the Pythagorean theorem because $\cos(90°) = 0$.

9. Mr. Parker wants fencing around his whole property shown in Figure 3. What length of fence will he need to the nearest foot?

   223 feet.

10. Rather than jog around a field, Humphrey chooses to jog along the marked path that cuts through Figure 4. How far did Humphrey jog? How much more would he have had to jog by going around the field instead of through it?

    1.9 miles through the field, an extra 0.3 miles or an extra 0.65 miles around the field, depending on which direction he jogged.