HW SOL 2.4
November 8, 2016  1:30 PM

1. Given each triangle, find the value of the indicated side or angle.

   \[
   \begin{align*}
   \text{In } \triangle ABC: &\quad AC = 5.25 \text{ cm} \\
   \text{In } \triangle DEF: &\quad DE = 12 \text{ cm} \\
   \text{In } \triangle PQR: &\quad PR = 9 \text{ cm} \\
   \text{In } \triangle ABC: &\quad \angle A = 52.5^\circ \\
   \text{In } \triangle DEF: &\quad \angle D = 120^\circ \\
   \text{In } \triangle PQR: &\quad \angle P = 60^\circ
   \end{align*}
   \]

2. Two hikers start out from the same place at 9:00 am. The first hiker walks at 40 km/h and the second hiker walks at 50 km/h. If the angle between the two hikers is 70° then, to 3 decimal places, how far apart are they after 11:30 am?

   \[
   \begin{align*}
   \text{Distance traveled by the first hiker: } &\quad 40 \times 2.5 = 100 \text{ km} \\
   \text{Distance traveled by the second hiker: } &\quad 50 \times 2.5 = 125 \text{ km} \\
   \text{Distance between the hikers: } &\quad 132.5 \text{ km}
   \end{align*}
   \]

3. Triangle \(ABC\) has sides of length 7, 12, and 15 cm. To the nearest degree, what is the measure of the largest angle of the triangle?

   \[
   \begin{align*}
   \text{Using the Law of Cosines: } &\quad \cos C = \frac{a^2 + b^2 - c^2}{2ab} \\
   \text{For } \triangle ABC: &\quad \cos C = \frac{7^2 + 12^2 - 15^2}{2 \times 7 \times 12} \\
   \text{Angle } \angle C &\approx 90^\circ
   \end{align*}
   \]
4. Find the measure of angle $x$.

5. Given that line GI bisects angle $F$, find the length of $ED$.

6. In $\triangle ABC$, $M$ is a point on $BC$ such that $BH = 5$ and $MC = 9$. If $AM = 3$, and $\angle AMB = \angle AMC = x$, determine the exact value of $AC$.

7. In the diagram, $AC = 2x$, $BC = 2x + 1$ and $\angle AGR = 30^\circ$.

If the area of $\triangle ABC$ is 18, what is the value of $x$?