1) $x^2 = 259^2 + 423^2 - 2 * 259 * 423 * \cos(132^o)$

$x^2 = 392625.88368$

$x = 626.5987$ meters

2) $x^2 = 12.9^2 + 15.4^2 - 2 * 12.9 * 15.4 * \cos(42.3^o)$

$x^2 = 109.6998$

$x = 10.4738$ meters

3. Solve triangle ABC if a = 9.5 feet, b = 15.9 feet, and c = 21.1 feet.
(hint: when you solve for <C you'll be able to tell if C is obtuse by analyzing cos C, i.e., if cos C <0, then you'll know C is obtuse…)

$$21.1^2 = 9.5^2 + 15.9^2 - 2 * 9.5 * 15.9 * \cos(x)$$

<C = 109.76°, <B=45.2°, <A=25.07°

3) $\beta = 102.47, \alpha = 54.02, \gamma = 23.51$

$$\frac{sin(102.47)}{x} = \frac{sin(23.51)}{459}$$

$$x = 1123.4935\ ft$$

4)

$90^2 = 45^2 + 60^2 - 2 * 60 * 45 * \cos(x)$ a=117.2796°

$$\frac{sin(117.2796)}{90} = \frac{\sin(\beta)}{60}$$

$$\beta = 36.3361^o$$

C=26.3843°

5) $\frac{360^o/_{orbit}}{2^{hr}/_{orbit}} = 180\ ^{degree}/_{hour} * \frac{1}{60}\ ^{hr}/_{min} = 3\ ^{degree}/_{min}$

$$3\ ^{degree}/_{min} * 3min = 9^o$$

$$x^2 = 8000^2 + 6400^2 - 2 * 8000 * 6400 * \cos(9^o)$$

X=1,954.66 km

6) $x^2 = 10^2 + 10^2 - 2 * 10 * 10 * \cos(128^o)$

$$x = 17.9759\ ft$$