# Tick Tock – Solution

**Solution 1:**

**In a three hour period, the hour hand moves $\frac{3}{12}$,or $\frac{1}{4}$, of the distance around the clock. Use the circumference formula to find how far the hour hand would move in one complete rotation around the clock. Since the hour hand is 6 inches long, the distance in one rotation would be $3.14 \times 12 = 37.68$ inches. The hour hand moved only $\frac{1}{4}$ of this distance, for a total of 9.42 inches.**

**During this same three hour period, the minute hand moves three times the distance around the clock. Since the minute hand is 8 inches long, the distance it would move in one rotation is $3.14 \times 16 = 50.24$ inches. However, it rotated this distance three times, for a total distance of 150.72 inches.**

**The question asks us to find the difference between the distance moved by the two hands.**
**150.72 inches – 9.42 inches = 141.3 inches.**

**Therefore, the minute hand moved 141.3 inches farther than the hour hand in one three-hour time period.**

**Solution 2:**

**In one day, the hour hand rotates around the clock twice. The total distance the hour hand would move in one day is represented by C=2×3.14×12=75.36 inches.**

**In one day, the minute hand rotates around the clock twenty-four times. This distance is represented by C=24×3.14×16=1205.76 inches.**

**The difference between the movement of the hands in one full day can be found by subtracting these two distances: 1205.76 – 75.36 inches = 1130.4 inches.**

**However, we only need to difference for a three-hour period. Since there are eight three-hour periods in one day, divide 1130.4 inches by 8. Therefore the difference in the distances for a 3-hour period is 141.3 inches.**