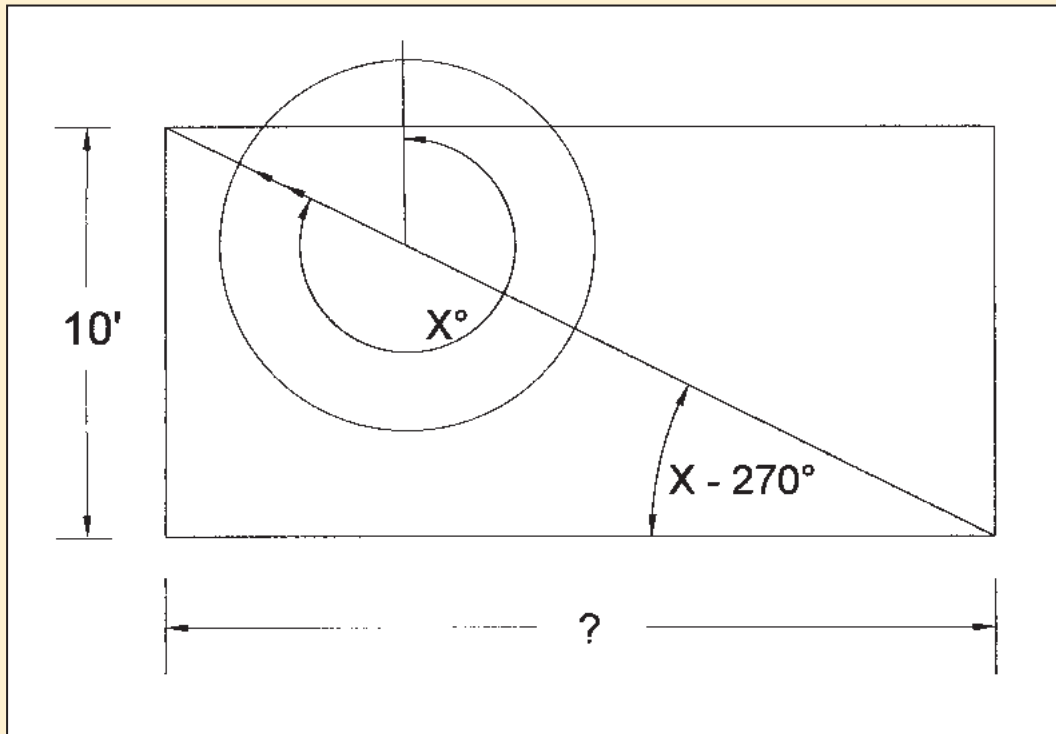




Solution to Problem 52



The clock is between 9:00 o'clock and noon (The problem stated "morning sun"). There are three possibilities:

1. The minute hand turns at the rate of 1 hour = 360, the hour hand turns at the rate of 12 hours = 360°.

If it was between 9 and 10 o'clock:

$$(x^\circ + 9 \cdot 360^\circ)(1 \text{ hour} / 360^\circ) = x^\circ (12 \text{ hour} / 360^\circ)$$

$$x + 3240 = 12x, \text{ and } x = 294^\circ 32' 44''$$

This converts to 9:49:09 a.m.

$$\text{The wall length would be } 10 \cdot \tan(360^\circ - x) = 21.5'$$

2. If it was between 10 and 11 o'clock:

$$(x^\circ = 10 \cdot 360)(1 \text{ hour} / 360^\circ) = x^\circ (12 \text{ hour} / 360^\circ)$$

$$x + 3600 = 12x, \text{ and } x = 327^\circ 16' 22''$$

This converts to 10:54:55 a.m.

$$\text{The wall length would be } 10 \cdot \tan(360^\circ - x) = 6.4', \text{ not likely.}$$

3. The only other possibility is that it was noon ($x = 360^\circ$, with a wall length of zero).