4-110. See below.

a. $\frac{1}{12}$

b. Intersection

c. No. P(yellow) = $\frac{1}{6}$

d. $\frac{2}{3}$

e. You cannot move $\frac{1}{6} + \frac{1}{6} + \frac{1}{3} = \frac{2}{3}$ or you move $\frac{1}{3}$ of the time and $1 - \frac{1}{3} = \frac{2}{3}$.

4-111. See below.

a. $y = 3$

b. $y = 9$

4-112. It assumes that everyone who likes bananas is a monkey.

4-113. $\approx$ 1469.27 feet

4-114. 6" < x < 14"

4-115. Methods vary: $\theta = 68^\circ$ (could be found using corresponding and supplementary angles), $\alpha = 85^\circ$ (could be found using corresponding angles since lines are parallel).

4-116. See below.

a. $P(K) = \frac{4}{52}$, $P(Q) = \frac{4}{52}$, $P(C) = \frac{13}{52}$

b. $\frac{16}{52}$; You can add the probabilities of king and club, but you need to subtract the number of cards that are both kings and clubs (1). $P(\text{K or C}) = \frac{4}{52} + \frac{13}{52} - \frac{1}{52} = \frac{16}{52}$

c. $P(\text{K or Q}) = \frac{8}{52} = \frac{2}{13}$. There is no overlap in the events so you can just add the probabilities.

d. $P(\text{not a face card}) = 1 - \frac{12}{52} = \frac{40}{52}$

4-117. ≈ 26 years

4-118. See below.

a. Yes, $\Delta ABD \sim \Delta EBC$ by AA ~.

b. Yes. Since $DB = 9$ units (by the Pythagorean Thm), the common ratio is 1.

4-119. $LE = MS$ and $LI = ES = MI$

4-120. AB ≈ 11.47 mm, A ≈ 97.47 sq. mm

4-121. See below.

a. $A'(-3, -3)$, $B'(9, -3)$, $C'(-3, -6)$

b. $A''(-3, 3)$, $B''(-3, -9)$, $C''(-6, 3)$

c. (9, 3)