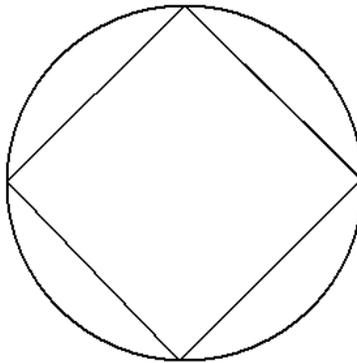1. How much money do we need to place into a bank account with 8% compound annual interest rate, compounded monthly, so that after 15 years, we have $\$5,000$ in the account?

2. Translate a 13% discount rate to interest rate.

3. Compute $\dbinom{25}{2} + \dbinom{25}{6} =$

4. Find the length of the diagonal of a rectangle with sides 15 cm and 8 cm.

5. The square below is written into a circle with radius 6 ft. Find the area of the square.

6. We wish to enlarge a picture that is 3 in wide and 5 in high.

   (a) How high should the enlargement be if we want its width to be 12 in?
   (b) How wide should the enlargement be if we want its height to be 12 in?

7. We throw 7 coins. What is the probability that the outcome is 4 heads and 3 tails?

8. There are 9 marbles in a bag: 4 red, 3 blue, and 2 yellow. We randomly pull two marbles, without replacement. Find the probability that

   (a) We pull a blue marble first and then a red one.
   (b) We pull a blue and a red marble.
   (c) We pull no yellow marbles.
   (d) We pull at least one yellow marble.
   (e) We pull two marbles of the same color.
   (f) We pull two marbles of different colors.

9. There are 9 marbles in a bag: 4 red, 3 blue, and 2 yellow. We randomly pull two marbles, with replacement. Find the probability that

   (a) We pull a blue marble first and then a red one.
   (b) We pull a blue and a red marble.
   (c) We pull no yellow marbles.
   (d) We pull at least one yellow marble.
   (e) We pull two marbles of the same color.
   (f) We pull two marbles of different colors.