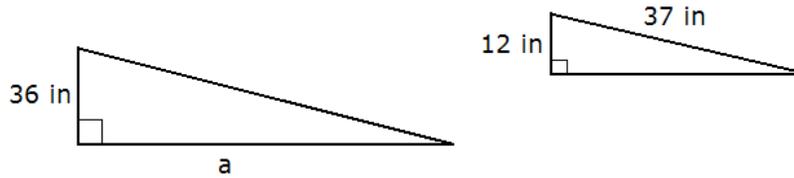
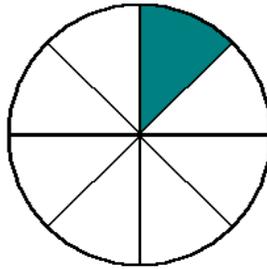


1. The triangles on the picture shown below are similar. Find the value of a .



2. Find the shaded area on the figure shown on the picture below. The radius of the circle is 10 ft long.



3. Find the present value of \$5000, two years from now. Use a compound annual interest rate of 5%, compounded annually.
4. Translate a 11% discount rate to interest rate.
5. We borrow \$2000 for a year, with a simple annual interest rate of 7%. After 5 months, we make a partial payment of \$800. After an additional 4 months, we make another partial payment of \$900. How much do we have to pay after the end of the year?
6. Find the volume of the pyramid of whose height is 11 in and whose base is a right triangle with sides 30 in, 40 in, and 50 in.
7. We roll two dice. Find the probability that the sum of the two numbers rolled is 9.
8. We have 15 marbles in a bag: 10 red, 4 blue, and 1 yellow. We pull two marbles, with replacement. Find the probability for each of the following events.
- We pull 2 marbles of the same color.
 - We pull 2 marbles of different colors.
 - We pull no red marbles.
 - We pull at least one red marble.

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9. We have 15 marbles in a bag: 10 red, 4 blue, and 1 yellow. We pull two marbles, without replacement. Find the probability for each of the following events.
- (a) We pull 2 marbles of the same color.
 - (b) We pull 2 marbles of different colors.
 - (c) We pull no red marbles.
 - (d) We pull at least one red marble.
10. We toss a coin eight times in a row. What is the probability that the outcome is
- (a) eight tails
 - (b) six tails and two heads
 - (c) four tails and four heads?
11. We pull two numbers out of $\{1, 2, 3, 4, 5, 6, 7, 8\}$. What is the probability that the sum of the two numbers pulled is 9? Assume
- (a) replacement.
 - (b) no replacement
12. We pull two numbers out of $\{1, 2, 3, 4, 5, 6, 7, 8\}$. What is the probability that the product of the two numbers pulled is odd? Assume
- (a) replacement.
 - (b) no replacement
13. We pull two numbers out of $\{1, 2, 3, 4, 5, 6, 7, 8\}$. What is the probability that we pull the numbers in an increasing order? Assume
- (a) replacement
 - (b) no replacement.