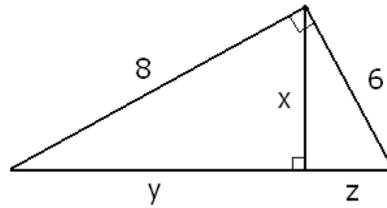


1. Determine x , y , and z , based on the picture below.



2. Compute the volume of a cylinder with a base of radius 4 cm and height of 21 cm.
3. We want to buy a car for \$5800. The dealership has a financing plan of a down payment of \$300 and 8% APR for 36 months. Compute the monthly payment under this plan.
4. We want to buy a car for \$8000. The dealership has a financing plan of no down payment and 9% APR for 24 months. Compute the monthly payment under this plan.
5. We want to buy a car for \$6400. The dealership has a financing plan of a down payment of \$400 and 48 monthly payments of \$142.29. What APR does the dealership charge?
6. We throw a coin six times in a row. What is the probability that the number of heads is more than the number of tails?
7. Find the present value of \$2000, five years from now. Assume a compound annual interest rate of 6%, compounded continuously.
8. We keep rolling a die until we roll the number 6.
 - (a) Find the probability of getting 6 for the first roll.
 - (b) Find the probability of getting 6 for the second roll only.
 - (c) Find the probability of getting 6 for the third roll only.
9. We pull two cards out of $\{1, 2, 3, 4, 5, 6, 7\}$, without replacement. Find the probability for each of the following events
 - (a) We pull two consecutive numbers.
 - (b) The product of the two numbers pulled is odd.
 - (c) The product of the two numbers pulled is even.
10. We pull two cards out of $\{1, 2, 3, 4, 5, 6, 7\}$, with replacement. Find the probability for each of the following events
 - (a) We pull two consecutive numbers.
 - (b) The product of the two numbers pulled is odd.
 - (c) The product of the two numbers pulled is even.

11. A couple plans to have three children.
 - (a) What is the probability that they will have one boy and two girls?
 - (b) What is the probability that they will have at least one girl?
 - (c) What is the probability that they will have more boys than girls?
 - (d) Suppose that the first child born is a girl. What is the probability now that they will have more boys than girls?
12. We have 10 marbles in a bag: 8 red and 2 green. We randomly pull two marbles, with replacement. If none of the marbles pulled is a green, we pay \$5. Otherwise, we receive \$10 for one green marble pulled and \$30 for two green marbles pulled. Find the expected value for this game.
13. We have 10 marbles in a bag: 8 red and 2 green. We randomly pull two marbles, without replacement. If none of the marbles pulled is a green, we pay \$5. Otherwise, we receive \$10 for one green marble pulled and \$30 for two green marbles pulled. Find the expected value for this game.
14. A healthy 40 year old man wants to buy a life insurance policy for a year. The policy is priced at \$ 200 and will pay \$ 30 000 if he dies during the year covered. Statistical data shows that out of 1000 healthy 40 years old males, 3 dies on average.
 - (a) What is the expected value of the life insurance policy for this customer?
 - (b) What is the expected value of the life insurance policy for the insurance company?