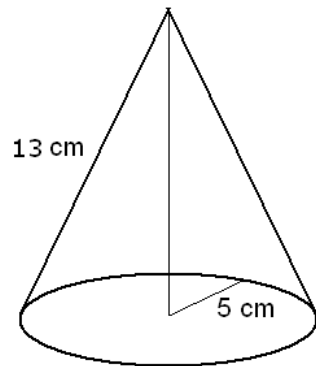
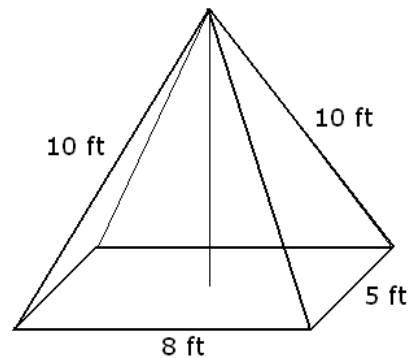


1. Write the number $0.\overline{304} = 0.304040404040\dots$ as a ratio of two integers. You do not have to simplify the fraction.
2. There are 20 marbles in a container, 12 blue, 5 red, and 3 yellow. We randomly pull two marbles, with replacement. Compute each of the following probabilities.
 - a) We pull two marbles of the same color.
 - b) We pull two marbles of different colors.
 - c) We pull no red marbles.
 - d) We pull at least one red marble.
3. There are 20 marbles in a container, 12 blue, 5 red, and 3 yellow. We randomly pull two marbles, with no replacement. Compute each of the following probabilities.
 - a) We pull two marbles of the same color.
 - b) We pull two marbles of different colors.
 - c) We pull no red marbles.
 - d) We pull at least one red marble.
4. We borrowed \$1000 for a year, with a simple annual interest rate of 8%. After 5 months, we make a partial payment of \$300. After an additional 3 months, we make another partial payment of \$350. How much do we have to pay at the end of the year?
5. We placed \$100 into a bank account with an annual compound interest rate of 8%. How much money do we have in the account after 20 years if the bank compounds
 - a) annually
 - b) semi-annually
 - c) monthly
 - d) daily
 - e) continuously?
6. 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.
7. 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?
8. We roll two dice.
 - a) What is the probability that the sum of the two numbers rolled is 10?
 - b) What is the probability that the product of the two numbers rolled is 12?
9. We toss four coins.
 - a) What is the probability that we end up with four tails?
 - b) What is the probability that we end up with three tails and one heads?
 - c) What is the probability that we end up with two tails and two heads?
10. We randomly pull a number from $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$.
 - a) What is the probability that we pull a number divisible by 3?
 - b) What is the probability that we pull a number larger than 6?
11. Find the distance between $A(-1, 4)$ and $B(-7, 12)$.
12. The population of a town has decreased from 90 000 to 84 600. What percent of a change does this represent?
13. Find the sum $\binom{5}{2} + \binom{5}{3}$
14. The base of a solid is a right triangle with hypotenuse 29 cm and one other side 21 cm long. The height of the solid is 30 cm. Find the volume of the solid.

15. a) Find the volume of a cylinder that has height 4 ft and a circular base of radius 2 ft.
 b) Find the volume of a cone that has height 4 ft and a circular base of radius 2 ft.
16. We pull a card from a standard deck of 52. What is the probability that we pull
 a) a red king? b) a king or a red card?
17. We pull two cards from a deck of 52, with replacement. Find each of the following probabilities.
- a) We pull two red cards. d) We pull two cards of different suits.
 b) We pull two cards of different colors. e) We pull two kings
 c) We pull two spades.
18. We pull two cards from a deck of 52, without replacement. Find each of the following probabilities.
- a) We pull two red cards. d) We pull two cards of different suits.
 b) We pull two cards of different colors. e) We pull two kings
 c) We pull two spades.
19. Compute the volume of each of the objects shown on the picture.



a)



b)