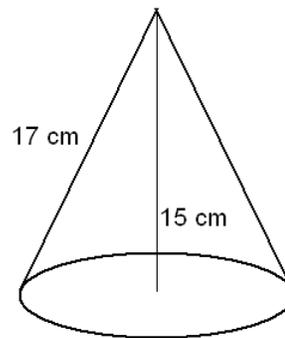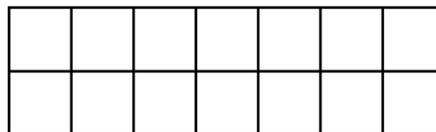1. Convert the repeating decimal $0.5\overline{23} = 0.52323232323...$ into a fraction of two integers.

2. We borrowed $5000 for two years, with a simple annual interest rate of 8%. After 8 months, we make a partial payment of $1000. After an additional 8 months, we make another partial payment of $1000. How much do we have to pay at the end of the two years?

3. We placed $5000 into a bank account with an annual compound interest rate of 8%. How much money do we have in the account after 22 years if the bank compounds

   a) annually   b) semi-annually   c) monthly   d) daily   e) continuously?

4. Compute the volume of the cone shown on the picture below.

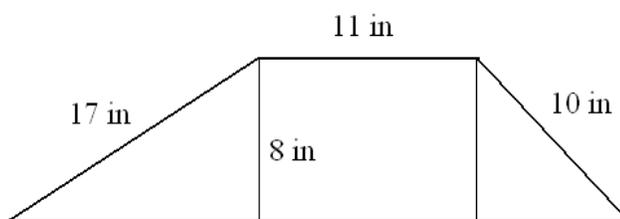5. We want to buy a car for $8000. The dealership has a financing plan of no down payment and 9% APR for 24 months. Compute the monthly payment under this plan.

6. 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?

7. We roll two dice.   Find the probability for each of the following events.
   a) The sum of the two numbers rolled is odd.   c) None of the numbers rolled is 4.
   b) The product of the two numbers rolled is odd.

8. We toss six coins. What is the probability that we end up with
   a) six tails?   c) four tails and two heads?
   b) five tails and one heads?   d) three tails and three heads?

9. Find the sum $\dbinom{4}{0} + \dbinom{4}{1} + \dbinom{4}{2} + \dbinom{4}{3} + \dbinom{4}{4}$
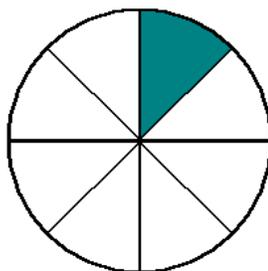
10. How many rectangles are there on the picture below?

11. We randomly pull two cards from $\{1, 2, ..., 10\}$, with replacement. Find the probability that
   a) We pull the number 7 twice?   d) The sum of the two numbers pulled is 11?
   b) None of the numbers rolled is a 7?   e) The sum of the two numbers pulled is 8?
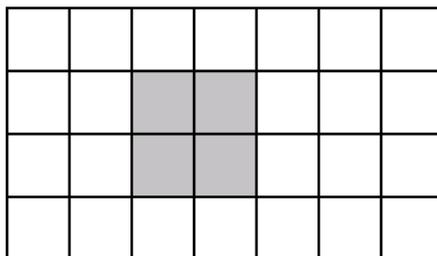   c) At least one of the numbers pulled is 7?

12. We randomly pull 2 cards from $\{1, 2, ..., 10\}$, without replacement. Find the probability that

   a) We pull the number 7 twice?　　　　　　d) The sum of the two numbers pulled is 11?

   b) None of the numbers rolled is a 7?　　　　e) The sum of the two numbers pulled is 8?

   c) At least one of the numbers pulled is 7?

13. Consider the trapezoid shown on the picture below. Include units in your computation and answer. Present your answer as an approximation, accurate up to four or more decimal places.

   a) Compute the perimeter of the trapezoid.

   b) Compute the area of the trapezoid.

   c) Find the volume of a solid if its height is 15 in and its base is the parallelogram shown on the picture.

   d) Find the volume of a pyramid if its height is 15 in and its base is the parallelogram shown on the picture.
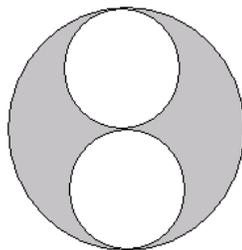

14. Find the volume of a cylinder that has height 9 cm and a circular base of radius 12 cm. Include units in your computation and answer. Present your answer as an approximation, accurate up to four or more decimal places.

15. The circle shown on the picture below is of radius 10 cm.

   a) Find the length of the arc belonging to the darkened sector.

   b) Find the area of the darkened sector.

16. We randomly drop a small object on the figure shown below. Assume it lands on the figure. What is the probability that it will land on the darkened region?

17. Consider the circles shown on the picture below.   The smaller circles have radius 5 m.

   a) Compute the area of the shaded region.

   b) We randomly drop a small object on the figure.   Assume it lands within the larger circle.   What is the probability that it will land on the darkened region?

18. Consider a bank account with a compound annual interest rate of 7%, compounded monthly.   How much money do we need to deposit into this account so that there is $1000 in the account five years later?