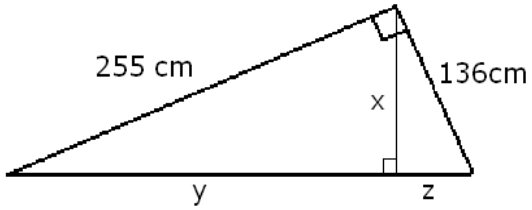
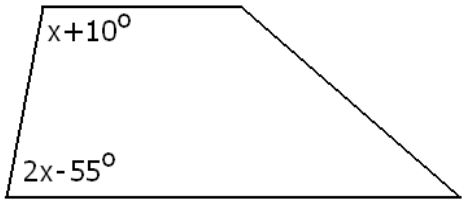
1. Find x, y, and z based on the picture below.



2. Find x based on the picture below. The polygon shown is a trapezoid.



3. Let $U = \{\text{m, n, o, p, q, r, s, t, u, v, w}\}$, $A = \{\text{m, n, p, q, r, t}\}$, $B = \{\text{m ,o, p, q, s, u}\}$, and $C = \{\text{m, o, p, r, s, t, v}\}$.

   (a) Draw a venn diangram depicting the data given.

   (b) Find $\left(B' \cap (B' \cap A)'\right) \setminus C$.

   (c) We randomly pull an element of B. If it is an element of C, we get \$5. If not, we pay \$3. What is the expected value for this game?

4. We have the following data: $3,\ 91,\ -11,\ 37,\ -7,\ -60,\ 13,\ -11,\ 7,\ 8$. Find each of the following.

   (a) mean

   (b) median

   (c) mode

5. We roll two die. What is the probability that the sum of the two numbers rolled is 7, given that the sum of the two numbers rolled is larger than 4?

6. We have 20 marbles in a bag: 17 red and 3 blue. We randomly pull three marbles, without replacement. If we pull three red marbles, we pay \$10. In any other case, we receive \$10 for every blue marbles pulled. (i.e. one blue marble means we recieve \$10, two blue marbles means we receive \$20, three of them means we receive \$30.) Find the expected value for this game.

7. We have 10 marbles in a bag: 7 red, 2 blue, and 1 yellow. We randomly pull two marbles, with replacement. Find the expected value of the number of blue marbles pulled.

8. We have 10 marbles in a bag: 7 red, 2 blue, and 1 yellow. We randomly pull two marbles, without replacement. Find the expected value of the number of blue marbles pulled.

9. Find the present value of \$100000, twenty years from now. Assume a compound annual interest rate of 5%, compounded

   (a) annually

   (b) monthly

   (c) daily

   (d) continuously

10. We pull two cards from $\{1, 2, ..., 10\}$, without replacement. If the product of the two number pulled is even, we pay \$3. If it is odd, we receive \$7. Find the expected value of this game.

11. We pull two cards from $\{1, 2, ..., 10\}$, with replacement. If the product of the two number pulled is even, we pay \$3. If it is odd, we receive \$7. Find the expected value of this game.

12. We drop small objects on the rectangle shown on the picture below. Find the value of x if the following is given: the probability of an object landing in the shaded area is $\frac{43}{48}$.