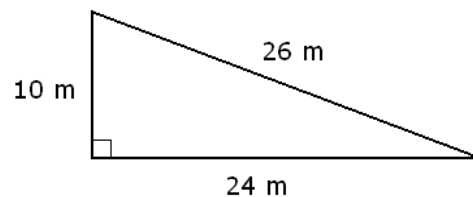
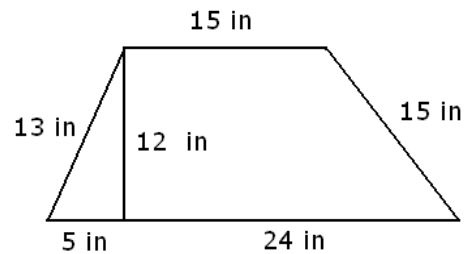


1. We borrowed \$5000 for a year, with a simple annual interest rate of 7%.
  - (a) How much do we have to pay back at the end of the year?
  - (b) Suppose that we are able to pay back the loan after 6 months. How much do we have to pay then?
2. Let  $U = \{a, b, c, d, e, f, g, h, i, j\}$ ,  $A = \{b, e, f, h, i\}$ ,  $B = \{c, d, e, g, h\}$ , and  $C = \{b, d, f, h, j\}$ .
  - (a) Draw a Venn diagram depicting these sets.
  - (b) Find  $A \cup (B' \cap C)$ .
  - (c) Find  $B \cap (A \cap C)'$ .
  - (d) Find  $(A \setminus C) \cup (C \setminus A)$ .
  - (e) How many four-element subsets does  $U$  have?
3. True or false?
  - (a) If  $A \subseteq B$ , then  $A \cap B = B$ .
  - (b) Every square is a parallelogram.
  - (c) Every parallelogram is a trapezoid.
  - (d) If  $A \subseteq B$  and  $B \subseteq A$ , then  $A = B$ .
4. Find  $n(X \cap Y)$  if we know that  $n(X) = 11$ ,  $n(Y) = 19$ , and  $n(X \cup Y) = 24$ .
5. We asked 30 students about their soda preferences. Among these students, 21 liked Pepsi and 22 liked Coke. 16 liked both Pepsi and Coke. How many students liked neither of these drinks?
6. The complement of an angle is  $12^\circ$  less than two times the angle. Find the angle.
7. Consider the right triangle shown on the picture below.
  - (a) Find the perimeter of the triangle. Include units in your answer.
  - (b) Find the area of the triangle. Include units in your answer.



8. Consider the trapezoid shown on the picture below.
- (a) Find the perimeter of the trapezoid. Include units in your answer.
- (b) Find the area of the trapezoid. Include units in your answer.



9. Consider a circle with radius 27 ft long.
- (a) Find the circumference of the circle. Include units in your answer.
- (b) Find the area the circle. Include units in your answer.