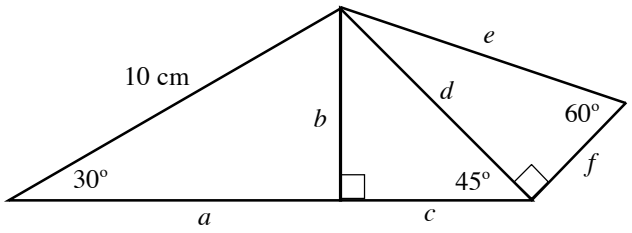
Math 51: Assignment 1 (25 points)
Due by the time you take Exam I – *Late Assignments will not be accepted.*

- *Do all work on a separate sheet of paper.*
- *You must show work to receive credit.*
- *Turn in work in order (#2 should come after #1, etc.)*
- *You may work in groups of up to 3 people. Points will be taken off, if more than 3 names are on one assignment.*

1. (2 points) Find one positive and one negative angle that is co-terminal to the angle that is complementary to 32^o.
2. (2 points) Pierre wants to know how long the shadow of a 12-story building is at 5 pm on a summer day. He estimates that each story of the building is 13 feet tall. Pierre is 5 ft 11 inches tall and he casts a shadow of 11 ft 2 inches at 5 pm. How long is the building's shadow?
3. (3 points) The terminal side of an angle is formed by portion of the line $5x + 2y = 0$, on the negative side of the *y*-axis. Find the 6 trig functions of this angle.
4. (3 points) Suppose $\sec\alpha = \frac{11}{5}$ and $\sin\alpha < 0$, find the other 5 trig functions for α.
5. (2 points) When driving down a mountain, Zulma notices that the elevation is listed as 3300 ft. After driving for 2 miles, she sees that the elevation is 2600 ft. Find the angle of elevation of the road she is driving on.
6. (3 points) Find the lengths of all the missing sides of all three triangles:



7. (3 points) Find the exact value of the following. *Decimal answers will not be accepted.*

   a. $\sec\left(\frac{19\pi}{3}\right)$ b. $\cot(-855°)$ c. $\csc\left(-\frac{5\pi}{6}\right)$

8. (4 points) To measure the height of a tower Romesh measures the angle of elevation from where he is standing to the top of the tower; the angle of elevation is 43 degrees. He then moves 20 meters further away from the tower and takes another measurement. This time the angle of elevation is 29 degrees.
   a. How far away from the tower was he when he took his initial measurement?
   b. How tall is the tower?
9. (3 points) Stockholm, Sweden is almost directly north of Cape Town, South Africa. Stockholm has a Latitude of 59° 21' N and Cape Town has a Latitude of 33° 56' S. If we are to assume that the earth has a radius of 6400 km, how far apart are the two cities?
10. (2 points) A 12" pizza has a diameter of 12". If the pizza is cut into 12 identical pieces, find the arclength and the area of one piece.