

- ▶ This assignment is to be written up individually (I should not see identical papers).
- ▶ Work primarily by yourself. You may ask a question of Mr. Hamilton before school, but you should not “give away” how to do problems to your peers.
- ▶ Points will be earned for each of your solution process, explanation, and answer.
An answer alone will not be enough to earn a decent grade!
- ▶ Please do all work (and have all pictures) on separate sheets of paper; attach this to the front!!!!!!
- ▶ This is due at the beginning of class Monday. Assignments turned late are automatically deducted 50% of the possible points. Any assignment submitted after class begins on Tuesday, April 20 will be an automatic zero.
- ▶ Note: Figures are not necessarily drawn to scale.



On this side, all answers should be in EXACT form (simplified fractions and square root expressions).
 If a line appears to be a straight line, then assume it is a straight line.

1.) Simplify the following expressions completely. [6 Points]

A.) $\frac{2\sqrt{6}}{3\sqrt{7}}$

B.) $\left(\frac{4\sqrt{7}}{3}\right)^2$

C.) $2\sqrt{405} - 3\sqrt{80}$

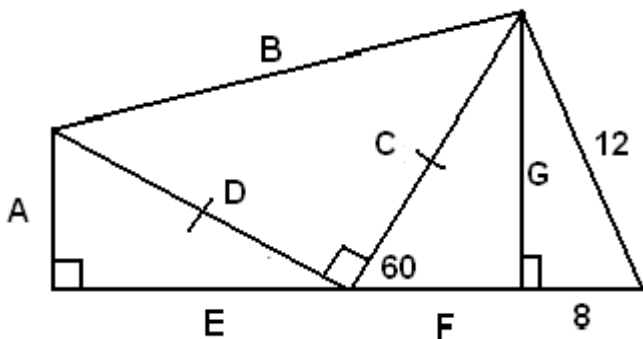
D.) $\frac{2}{20\sqrt{6}}$

E.) $(2\sqrt{5})(6\sqrt{15})$

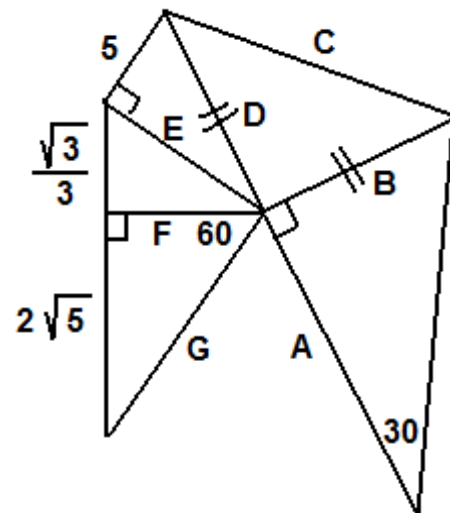
F.) $(\sqrt{8} + \sqrt{32})^2$

2.) Solve for the variables in the figures below in EXACT form. [14 Points]
Make it clear what you're doing applies to the triangle in which you're working.

A.)



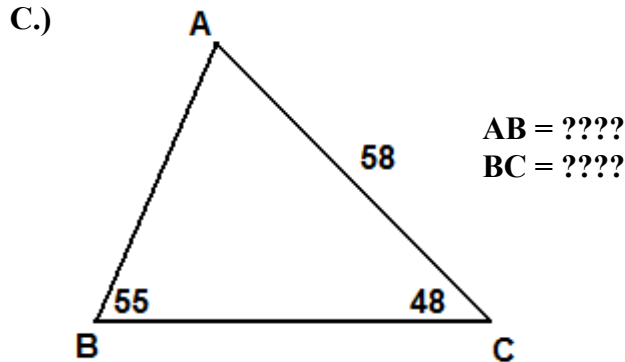
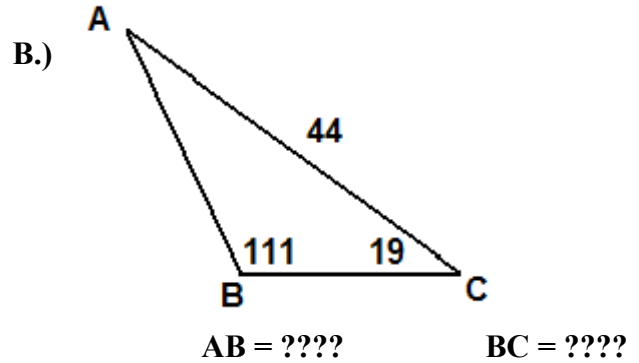
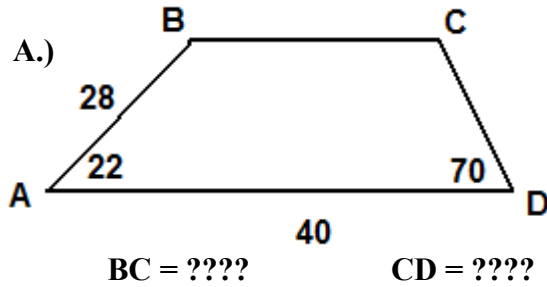
B.)



On this side, all answers should be decimals. Please use at least three decimal digits from each trig ratio.

- 3.) In each figure, solve for the requested items.

[15 Points]

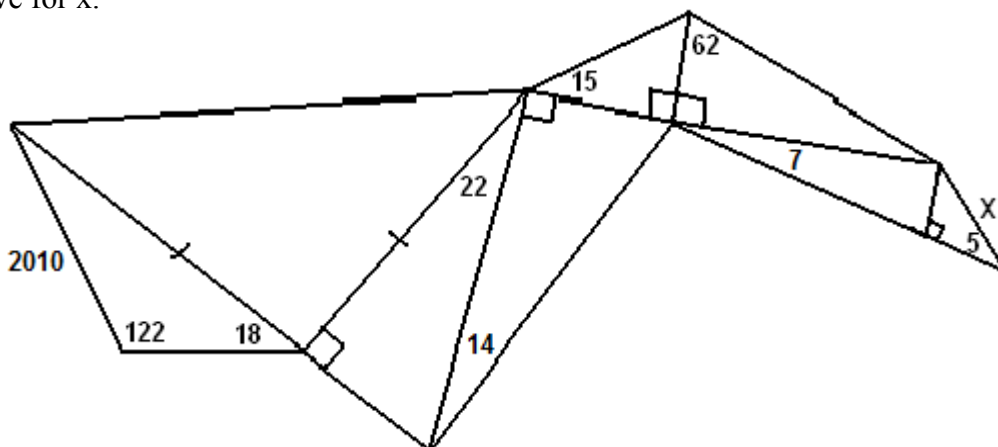


- 4.) Josh goes to an art museum. He looks at a large framed picture that is 4 feet tall as he stands 7 feet away from the wall. If this picture is hanging on the wall so that its bottom is three feet above Josh's horizontal line of sight, what angle is formed by Josh's eyes as he views the picture from top to bottom?

[4 Points]

- 5.) Solve for x.

[5 Points]



- 6.) To measure the height of a building, Joe has a brilliant idea! From the roof, he throws a penny and a dime as far as he can. After doing this (at the edge of the roof), he measures the angle of depression to be 20° to see the penny and 18° to see the dime. Then, he goes to the ground floor, runs outside, and measures the distance between the coins to be 25 feet. From this, Joe knows he can find the height of the building. What is the height of the building? Note that Joe is six feet tall (his eyes are six feet above the ground).

[4 Points]