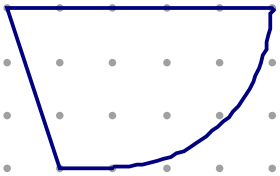
Math 247 final exam review

Geometry practice problems

1. a. Find the perimeter of this shape

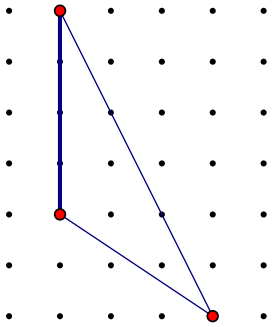


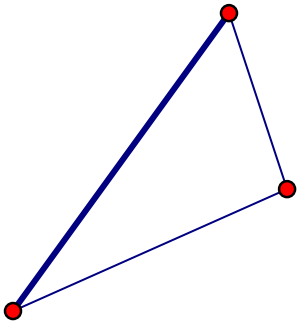
b. assuming that the grid is a 1 cm grid, what are the correct units for the perimeter?

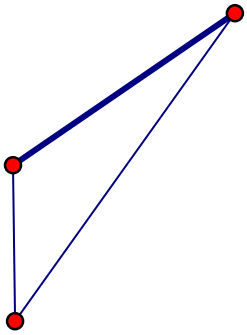
c. Find the area of this shape

d. assuming that the grid is a 1 cm grid, what are the correct units for the area?

2. Using the bold side as the base, draw the height for each of these triangles:

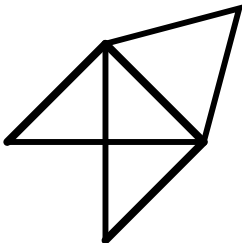


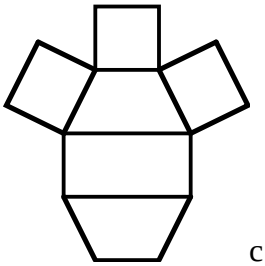


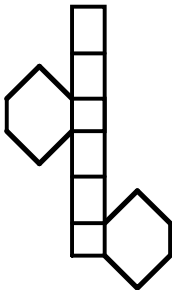


3. Explain how the area of a triangle and the area of a parallelogram formula are related.

4. Describe/name the polyhedron that would be constructed from this net

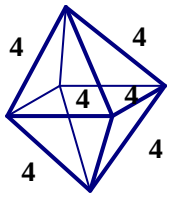
a. 

b. 

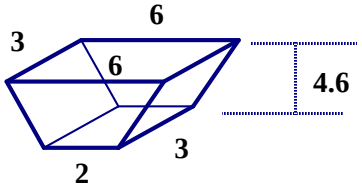
c. 

5. Which of the following is a prism?

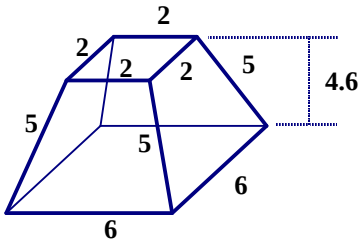
a.



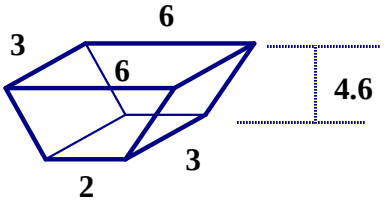
b.



c.



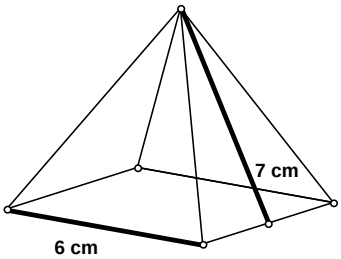
6. Find the surface area of:



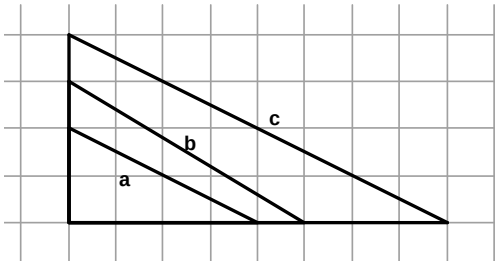
7. a. Find the height of this pyramid with a square base:

b. Find the volume of this pyramid with a square base:

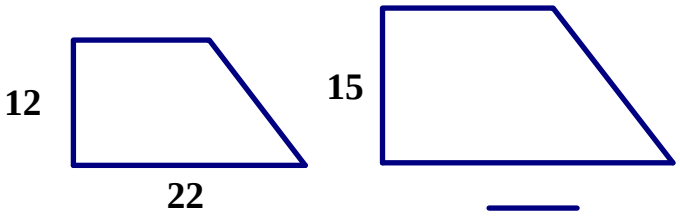
c. Find the surface area of this pyramid with a square base:



8. Which pair(s) of these triangles are similar?

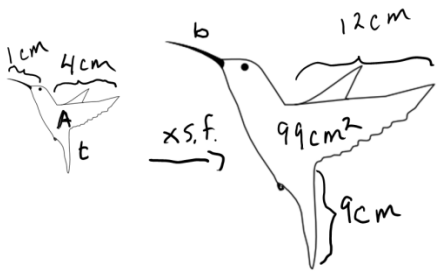


9. These shapes are similar. Find the length of the missing side



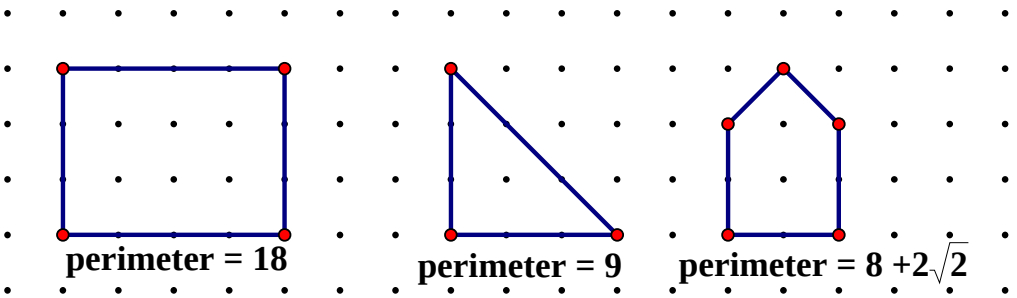
10. Fill in the missing scale factor, lengths and areas for this pair of similar shapes:

1.	original	scale factor	new
beak	1 cm		
wing	4 cm		12 cm
tail			9 cm
Area			99 cm^2



11. Jan built a 1/50 scale model of the new library before it was built.
a. The length of one side of the scale model is 3 feet, what is the length of the corresponding side of the library?
b. Jan used 2 square feet of glass for the windows in the model, how many square feet of glass will the library have?

12. What common misconceptions might lead to these wrong answers when finding the perimeter of these shapes:



perimeter = 18 **perimeter = 9** **perimeter = 8 +2$\sqrt{2}$**

Things to pay attention to when you study the earlier topics
Fractions:

1. Comparing two fractions by reasoning about unit fractions (3rd grade strategies)
2. Explaining equivalent fractions using a visual model (square or number line)
3. Distinguishing between adding, subtracting, multiplying a dividing with fractions in a word problem context.
4. Showing and explaining fraction division on a number line
5. Showing and explaining fraction multiplication with a square or number line

Ratios:

6. Writing sentences to describe ratio relationships
7. Representing ratio relationships with bar diagrams
8. Solving ratio word problems

Data graphing:

9. Know what sorts of data to use with which graphs for the early elementary types of graphs: bar graphs, picture graphs and line plots.
10. Know what sorts of data to use with which graphs for the later elementary/middle school types of graphs: histograms, box plots, line graphs, scatter plots