Advanced Geometry: **Some Final Exam Review Problems (Multiple Choice)**

Unit 1

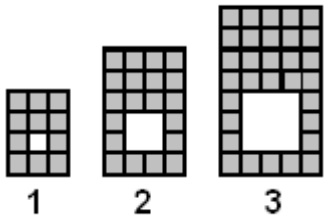
1.) Most likely next term in the sequence: 50, 10, -12, -20, -18, -10 , ?? using inductive reasoning?
0

2.) Find $a_{2007} = ?$ for an arithmetic sequence with $a_{13} = 22$ and $a_{27} = -146$
-23906

3.) Find the general rule for a geometric sequence with $a_3 = 500$ and $a_6 = 62500$
$a_n = 4*5^n$

4.) People in a hotel discuss their favorite of the 32 NFL football teams. Professor Pi, a witty mathematician, noted that there had to be at least one NFL team that at least 20 people had as their favorite in the hotel. What is the minimum number of people in the hotel?
609

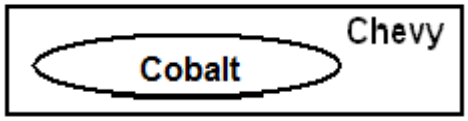
5.) How many unit squares would there be in the 207th figure?
44095



Unit 2

1.) Complete the logical syllogism:
(A) All people who design web pages profit.
(B) ??????
(Walt designs web pages) (C) Walt profits!

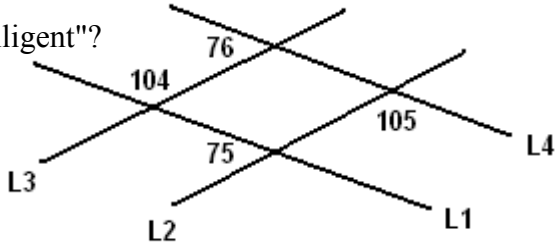
2.) Draw a "Euler Diagram" that illustrates the statement: "If it is a Cobalt, it is a Chevy."



3.) What is the converse of "If it is Friday, then Mr. Hamilton goes to bed at 5:00 PM"?
If Mr. Hamilton goes to bed at 5:00 PM, then it is Friday.

4.) What is the inverse of "If you have a Ti-89 calculator, then you are cool!"
If you don't have a Ti-89 calculator, then you are not cool.

5.) What is the contrapositive of: "Browns fans are intelligent"?
If you aren't intelligent, then you aren't a Browns' fan.



Unit 3

1.) Which lines are parallel in the figure?
L1 || L4

2.) What is the sum of the measures of the interior angles in a 120-gon?
21240 degrees

3.) Each interior angle in a regular polygon measures 178 degrees. How many sides does it have?
180

4.) Explain what the transformation T(x,y) = (-x + 5, -y - 2) does to a figure in the coordinate plane.
Reflect across both the x- and y-axes; Translate right 5, down 2.

5.) Three points in the plane are (-1, 3), (2, 5), (4, -3). Find all possible points that would make the overall figure a parallelogram. **(-3, 11), (7, -1), (1, -5)**

Unit 5

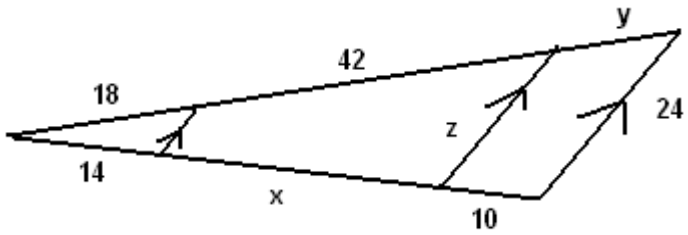
1.) What is the measure of the smallest angle in a 7-24-25 right triangle?
16.26 degrees

2.) Ralph looks up at an angle of 42 degrees to see a kite. Using his laser, he finds that the kite is a straight line distance of 100 yards away. How high above the ground is the kite?
66.9 yards above the ground.

3.) The long leg in a 30-60-90 right triangle has length 5*sqrt(11). Find the length of the hypotenuse in simplified radical form. **10*sqrt(33) / 3**

4.) From a lighthouse, a spotter looks with an angle of depression of 8 degrees to notice a ship giving a distress signal. If the lighthouse window is 200 feet above sea level, how far away from the base of the tower (horizontally) is the boat? **1423.07 feet**

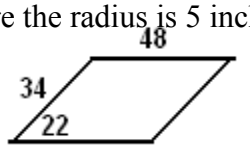
5.) Find the values of x, y, and z.
x = 32.667
y = 12.8571
z = 19.7647



Unit 6

1.) Find the length of an arc in a circle where the radius is 5 inches and the central angle measures 74 degrees. **6.46 inches**

2.) Find the area of the parallelogram:
611.36



3.) Find the area of a regular 11-gon with a side length of 10 cm.
936.56

4.) Find the area of the segment pictured on the right:
158.787

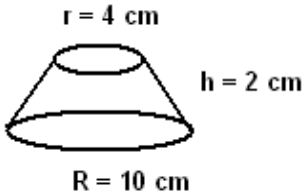
5.) A cat is tied on the outside of a building in the shape of a regular decagon (10 sides). The length of each side of the building is 100 feet, and the cat has a 170 foot leash. How much area can the cat use?
57554 sq. ft.

Unit 7

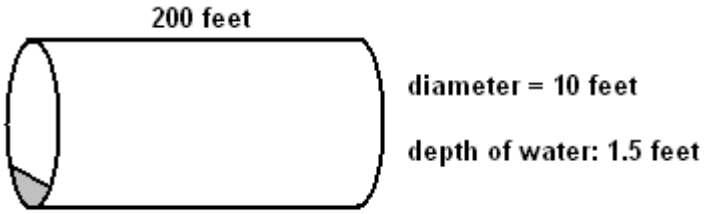
1.) Find the volume of a prism that has regular hexagons as bases (length: 14 feet) and a height of 10 feet.
5092.23 cubic feet

2.) Find the surface area of a right cone with diameter 12 cm and height 7 cm.
286.9 sq. cm.

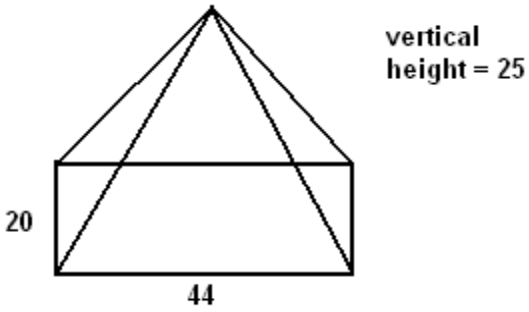
3.) Find the volume of the frustrum (cone with top removed)
326.726 cubic cm



4.) Find the volume of water in the sewer pipe:
1477.49 cubic feet



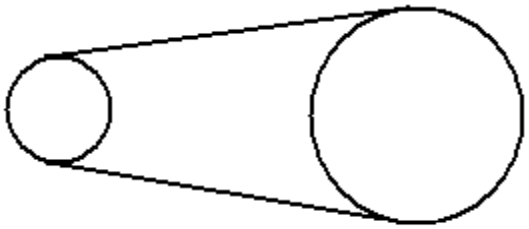
5.) Find the surface area of the right rectangular pyramid:
2730.77



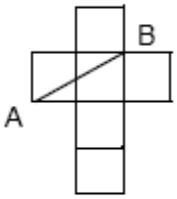
Miscellaneous

5.) Larger Radius: 30 feet
Smaller Radius: 18 feet
Distance Between Centers: 82 feet

Length of Belt?
316.518



4.) A cross is made of six congruent squares. Find its combined area if AB = 10.
120



3.) Playing darts, what is the probability a beginner (throwing darts randomly that hit the board somewhere) throws a dart landing in the region marked 3?
0.56