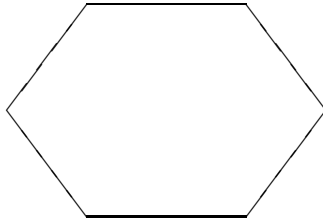


EXAM 3
Math 152
November 29, 2007

Name _____

1. Divide the Hexagon below into six identical Kites.

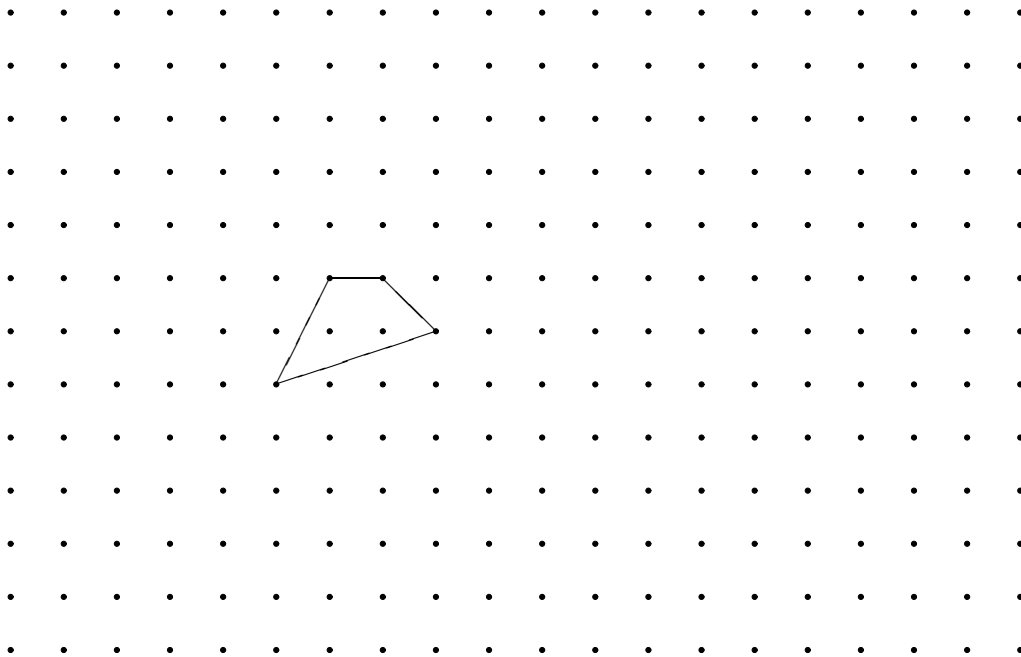


2. Sketch an isosceles trapezoid and show all of its symmetries (both line and rotational).

3. For each of the following geometric types some of the vertex angles are listed. Find the other vertex angle.

- (a) Triangle: one angle measures 25° another angle measures 75° , what does the third angle measure?
- (b) Kite (Not a rhombus): Two opposite angles measure 115° , what do the other angles measure?
- (c) Hexagon: Angles of measure 105° , 125° , 115° , 135° , 155° exist, what is the measure of the 6th angle?

4. On the grid below is a quadrilateral. Show a tessellation of the grid using the quadrilateral. (You don't need to completely fill up the grid, just show me the pattern)

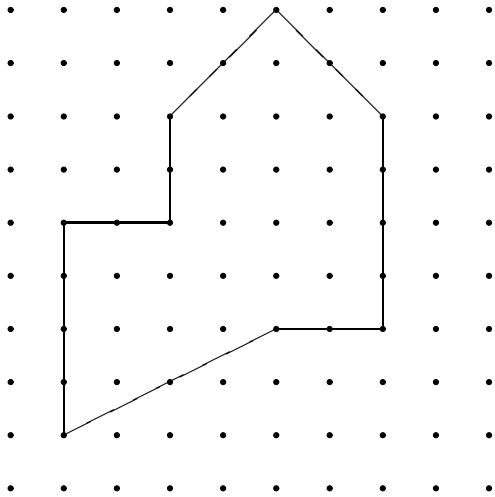


Now draw the vertex figure for this tessellation.

5. What is the measure of the central angle of a regular dodecagon (12-gon)? vertex angle? exterior angle?

6. If one inch of rain falls on one acre of ground how many cubic inches of water would that be?
cubic feet?

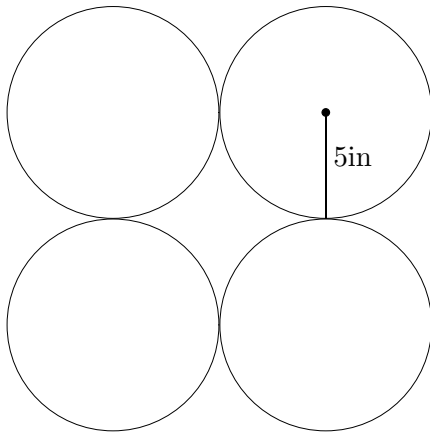
7. Assume the grid is spaced one unit apart in each row and column. Find the area of the following figure.



8. A ladder is leaning against a building. If the ladder reaches 20 feet high on the building and the base of the ladder is 15 feet away from the bottom of the building, how long is the ladder?

9. Find the area of an equilateral triangle whose sides all have length 6 units.

10. Find the area of the area contained between the four circles in the picture below



11. A room measures 4 meters by 7 meters and the ceiling is 3 meters high. A liter of paint covers 20 square meters. How many liters of paint will it take to cover the walls and ceiling (but not the floor) of this room?

12. Suppose a pyramid has a rectangular base with a width of 8 meters and a length of 24 meters. The pyramid is 5 meters in height. What is the surface area of the pyramid?

13. A pipe 8 inches in diameter and 100 yards long is filled with water. Find the volume of the water in the pipe, in cubic yards.

14. A four inch thick concrete slab is being poured for a circular patio with a radius of 5 feet. Concrete costs 50\$ per cubic yard. Find the cost of the concrete to the nearest cent.