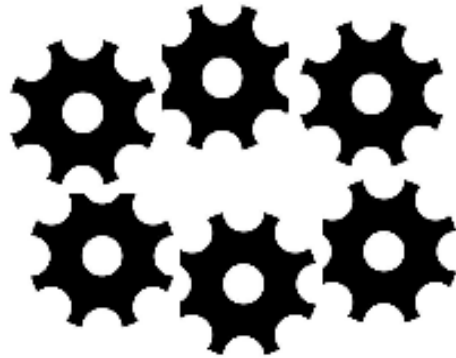


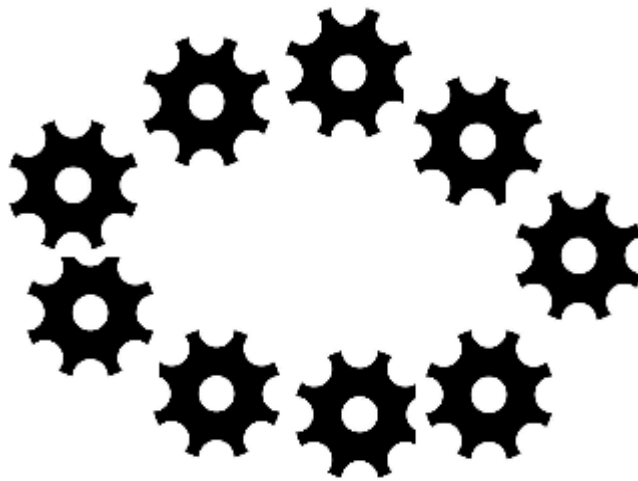
## Winter 2012 Meeting 2

1. For each of the gear systems given below, decide whether the gears can turn at the same time.

a)



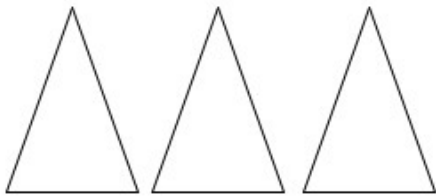
b)



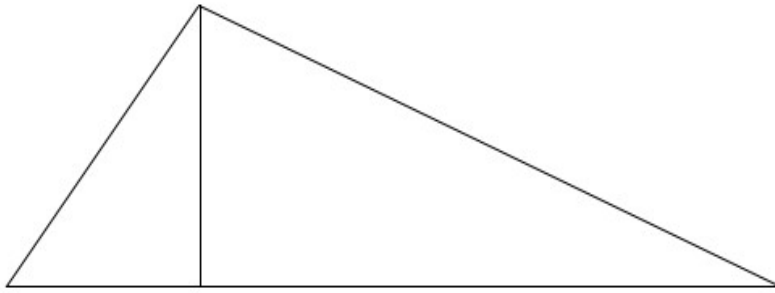
2. A flock of cranes forms a triangle when flying. At the front, there is one crane. In the next row, there are 2 cranes. In the third row, there are 3 cranes, etc. There are 28 cranes in the flock. How many rows will there be?

$$1 + 2 + 3 + \dots + \square = 28$$

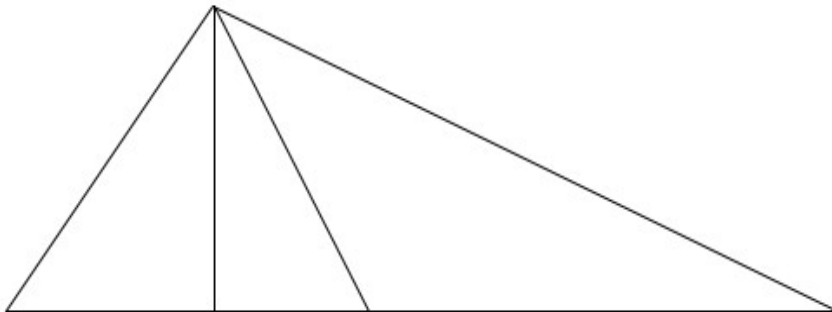
3. Below are 3 triangles facing upward. Your goal is to flip all triangles to face downward, but you can only flip 2 triangles at a time. Can this be done? If yes, draw all the steps in your solution. If not, explain why it can not be done.



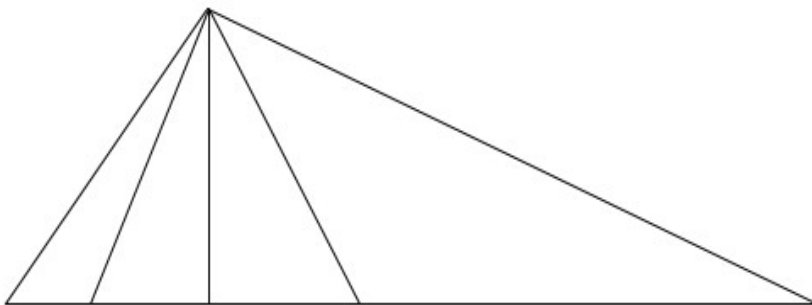
4. How many triangles are there on the picture below?



5. How many triangles are there on the picture below?



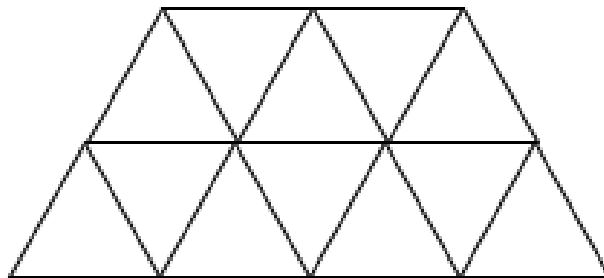
6. How many triangles are there on the picture below?



7. I have 24 toys. 4 of them are dolls and 8 are bouncing balls and the rest of them are blocks. Julie built 3 identical towers out of blocks. Assuming each block is a toy piece, how many blocks were needed for each tower?

8. Cut the shape into:

a) 3 equal parts (same number of triangles AND same shape):



b) 4 equal parts (same number of triangles AND same shape) :

