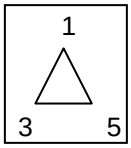
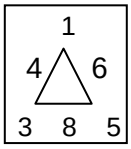
Geometry Puzzlers

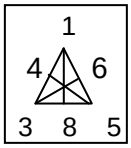
1. Magic Triangle



Draw a triangle. Put a different # 1-9 at each corner



On each side, write the total of its 2 corners.

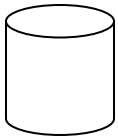


Draw lines from each corner to its opposite side. Total the #s at the end of each line.

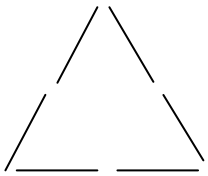
What do you get? Why?

2. A Tasty Volume

What is the volume of a tube with radius Z and height A?



3. 5 Triangles



Start with 1 equilateral triangle made by 6 toothpicks (or straws, pencils, etc.).

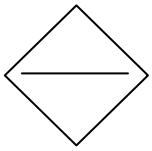
Challenge: add 3 toothpicks to result in a total of 5 equilateral triangles.

4, 11 Squares from 11 Toothpicks?

Using 11 toothpicks, can you make 11 squares? (You can also use straws, pencils, etc.)

5. Diamond Challenge

Lay out 5 toothpicks (or pencils or crayons) forming a diamond with line in middle.



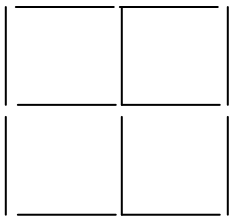
Challenge: Take away 3, put back 2, & have same design that you started with.

6. Equilaterals

Using 9 toothpicks (or crayons, pencils, etc.), make 3 equilateral triangles side by side:

Challenge: Can you move 2 toothpicks to make 4 equilateral triangles?

7. Square Deal



Use 12 toothpicks to form 4 squares as above. Challenge: Can you remove 2 & have 2 squares left?

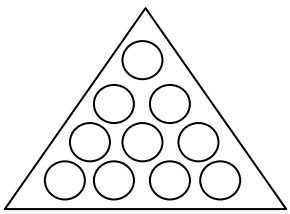
8. Secret Code

How many letters are in each word? What famous math concept does this represent?

May I have a large container of orange juice now please.

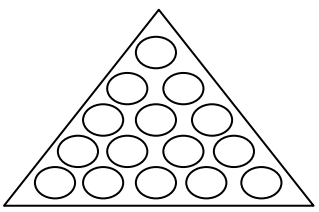
9. A Triangular Challenge

Can you place 6 white balls and 4 gray ones in the 10 slots below so that no 3 white balls form an equilateral triangle?

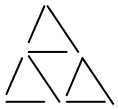


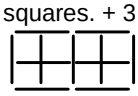
10. Triangular Challenge #2

Can you place 5 striped balls, 5 polka dot balls, and 5 solid balls in the triangle below so no 2 of the same type balls are touching?



Solutions 1A

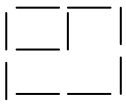
1. The total are the same. Each adds all 3 corners.
2. Pizza (pi z^2 a)
3. 
4. Make 2 adjacent squares using 7. Use 2 to make a cross inside ea sq. = 8 squares. + 3 big ones.

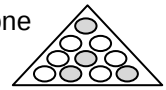


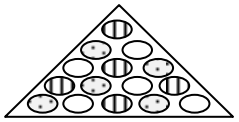
5. Push any 3 away, then put back the other 2, uniting all again.

Solutions 1B

6. Move to from the right to the top:

7. 
8. Pi. 3.1415926536
9. Here is one solution:



10. 

Split students into 5 groups, giving each a different puzzler above to solve. Circulate, helping as needed. Each group presents & teaches theirs to the class. Repeat with next 5 puzzlers.