

December 12th

In a sack, there are seven sticks with lengths

2cm, 4cm, 5cm, 8cm, 10cm, 11cm and 19cm.

If three are picked at random, what is the probability that they can form a triangle?

There are 7_3C ways to choose 3 sticks = 35

Now look for triplets that won't make a triangle

2, 4, 19	2, 5, 19	2, 8, 19	2, 11, 19	4, 8, 19	5, 10, 19
2, 4, 11	2, 5, 11	2, 8, 11	4, 5, 10	4, 10, 19	5, 11, 19
2, 4, 10	2, 5, 10	2, 8, 10	4, 5, 11	4, 11, 19	8, 10, 19
2, 4, 8	2, 5, 8	2, 10, 19	4, 5, 19	5, 8, 19	8, 11, 19

This is 24 combinations

Therefore the probability of choosing 3 that will form a triangle is $\frac{11}{35}$

2, 4, 5	2, 10, 11	4, 5, 8	4, 8, 10	4, 8, 11	4, 10, 11
5, 8, 10	5, 8, 11	5, 10, 11	8, 10, 11	10, 11, 19	