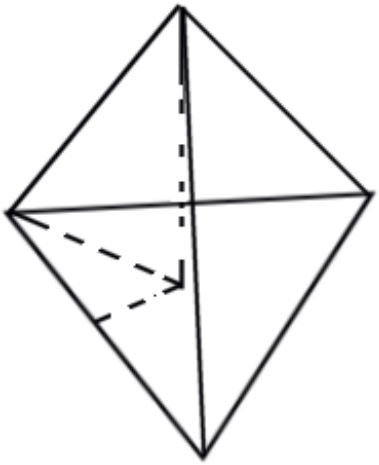
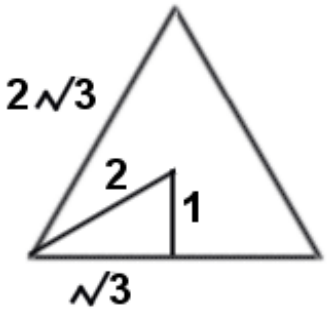
Four Ball Configuration

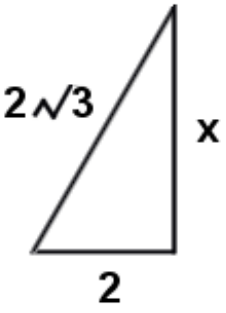
Geometry



Plan View

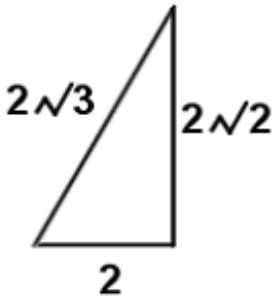


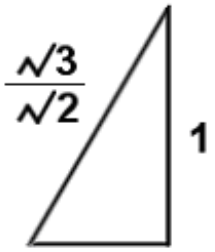
Side View



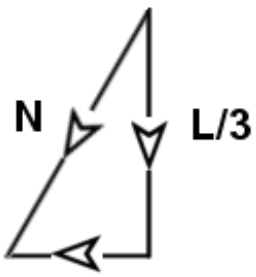
$$4 \times 3 = 4 + x^2$$

$$x = 2\sqrt{2}$$





Vectors



L	=	Applied Load (shared between 3 balls)	N
N	=	Normal Load on Ball	
	=	0.4083 x L	N

Friction Radius	=	3.667	mm
Total Contact Load	=	3 x N	
	=	1.224745 x L	N

Result

Measured Torque = $1.224745 \times L \times \mu \times 3.667 \times 10^{-3}$ Nm

μ = 222.66 x Measured Torque / Applied Load