

Babar, Ganesh, and Cecilia – Force Vectors

2 elephants, Babar and Ganesh, are going to have a tug-of-war. They are very equally matched, so no one is winning. Babar's little sister, Cecilia, demands that she wants to play as well. So Babar, being a good big brother, gets 3 pieces of rope and ties all three ends into a knot. Each elephant grabs one rope and gets ready to pull. On the count of 3 they all start pulling.

1. Draw the situation
2. If the elephants are all spaced at equal angles (120 deg.), draw the forces on the knot (assume Babar and Ganesh can exert twice the force of Cecilia).
3. Which way will the knot move? Why?
4. Is there a way that Babar and Ganesh could position themselves so that they wouldn't overpower Cecilia? If so, draw the configuration and the forces.

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