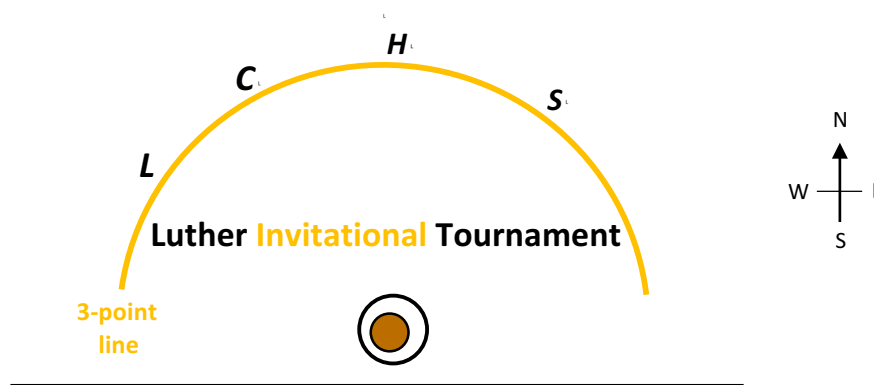


# Sciences Shine at LIT, World-Class Matches Guarantee

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Based on recent statistics, about 30% of all shots in Luther Invitational Tournament<sup>1</sup> come from behind the 3-point line.

During comprehensive preparation for the crucial match, the home team analyzed the system of shooting positions along a circular arc of the radius  $r$ , in which position  $H$  is equidistant from positions  $C$  and  $S$ . Applying Physics and Pre-calculus, athletes considered displacements  $\vec{LC}$ ,  $\vec{LS}$  and  $\vec{LH}$ , having the magnitudes  $a$ ,  $b$ , and  $c$ , and the directions  $[N \alpha^\circ E]$ ,  $[N \beta^\circ E]$ , and  $[N \gamma^\circ E]$ , respectively.



After concepts were brainstormed and strategies identified, teammates decided to model relationships:

- between the angles  $\alpha$ ,  $\beta$ , and  $\gamma$  using midpoint formula

$$2\gamma = \alpha + \beta$$

- between the distances  $a$ ,  $b$ , and  $c$  using the arc midpoint computation

$$2c = \sqrt{(r+a)(r+b)} - \sqrt{(r-a)(r-b)}$$

Show that the decisions made by the players are winning.

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<sup>1</sup> Luther Invitational Tournament is the longest running high school tournament in Canada.