

A light ray in a semicircular cavity

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It is well known that the path of a light ray incident on the inner reflecting wall of a circular cavity can be constructed by geometric means. In the present work we consider the case of a semicircular cavity. The geometric properties of circular cavities are thus recalled, and a graphical approach is devised to allow students to trace trajectories by a ruler-and-compass method. Subsequently, reflection patterns in semicircular cavities are sought. It is found that the graphical method developed for the circular cavity can still be adopted to derive the reflection patterns in the case of semicircular cavities. Simple laboratory activities are proposed. Finally, the case of cavities with different shapes is briefly discussed.

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