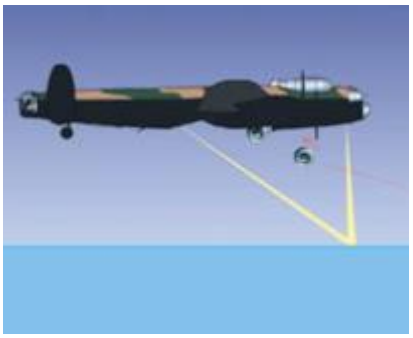
# The Bouncing Bomb

Read the article attached which tells the WW2 story of the Bouncing Bomb.

https://www.iwm.org.uk/history/the-incredible-story-of-the-dambusters-raid

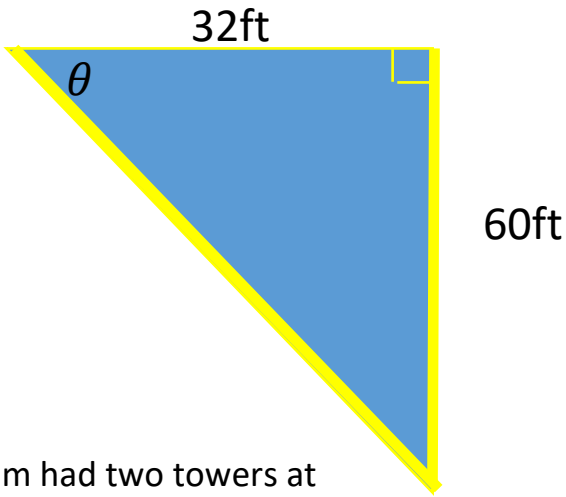
To ensure that the bomb bounced to exactly the right spot, it needed to be released at the correct height and the correct distance from the dam. Electronic equipment was not available to help with this at that time and so to solve this problem Barnes Wallace used some simple mathematics.

To ensure that the plane was flying at the correct height: lamps were fitted to the front and centre of the plane, 32ft apart. The angle of the centre lamp was adjusted so that when the plane was flying at 60 ft, the beams of light from the lamps would align together.



The diagram shown is a model of the situation,

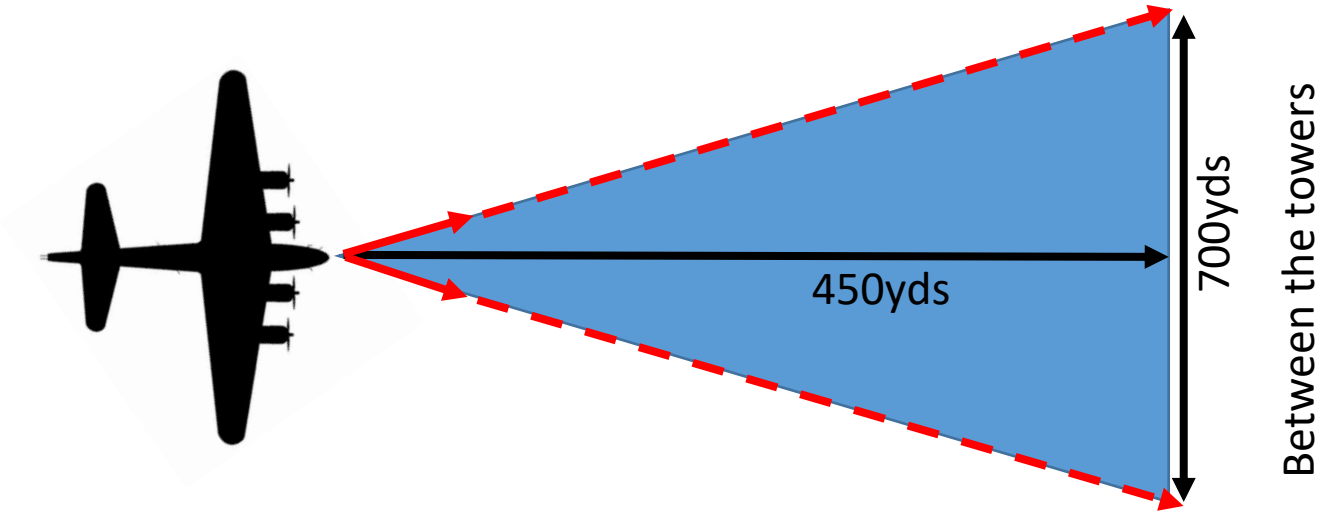
What angle $\theta$ should the lamp be set to?




The Mohne Dam had two towers at either end, as seen in the picture. To ensure that the bomb was released at the correct distance of 450 yds from the target, a simple triangular wooden sight with two vertical nails was devised, through which the aimer looked. When the dam lined up with the two nails, the bomb was released.

Hackney

Consider this plan view of the situation. The spotter is sitting in the front of the plane holding his wooden viewing device, with nails that will line up with the towers when he reaches the correct distance.




What angle should the triangular viewer be set at to ensure that the bomb is released at the correct distance?

Operation Chastise was the code name of this mission. The film 'The Dam Busters' tells the story of the raid, but was the raid considered a success and what was the cost in human life?

Take a look at the English resources where you will find an additional task that investigates this question.