

**RELATIONSHIPS HOMEWORK 6**

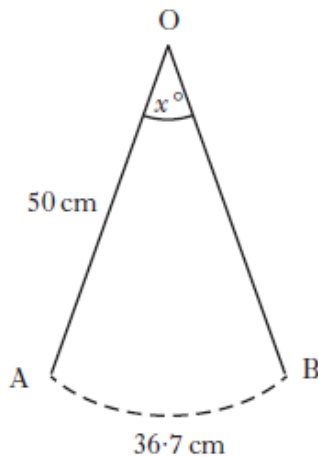
Non calculator:

Determine the nature of the roots of the function  $f(x) = 7x^2 + 5x - 1$ .

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Calculator

As the pendulum of a clock swings, its tip moves through an arc of a circle.



The length of the pendulum is 50 centimetres.  
The length of the arc is 36.7 centimetres.  
Calculate  $x^\circ$ , the angle through which the pendulum swings.

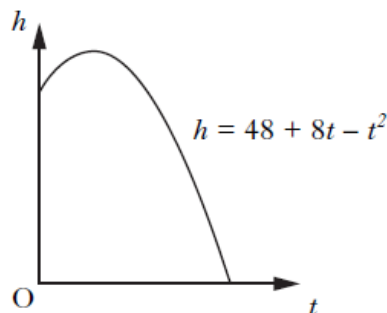
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Challenge Question (Calculator)

The diagram shows the path of a flare after it is fired.

The height,  $h$  metres above sea level, of the flare is given by

$h = 48 + 8t - t^2$  where  $t$  is the number of seconds after firing.



Calculate, **algebraically**, the time taken for the flare to enter the sea.

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