



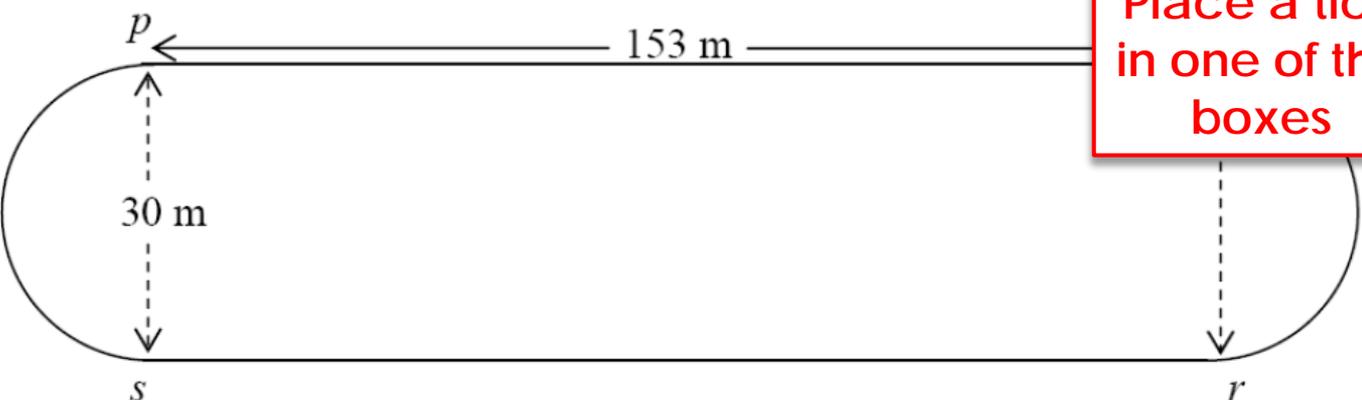
So, you think you've got
a problem?

(What constitutes a
problem?)

WS3.1 – Problem Solving

WS3.1 - Problem Solving

Read through the past papers provided and tick in the boxes below whether, in your opinion, certain questions are procedural or problem solving.

JCOL 2008 Q1 (c) (i)	Procedural	
	Problem Solving	
<p>An athletics track has two equal parallel sides [pq] and [sr] and two equal semi-circular ends with diameters [ps] and [qr]. $pq = sr = 153$ metres, and $ps = qr = 30$ metres.</p>  <p>Taking π as 3.14, calculate the length of one of the semi-circular ends, correct to the nearest metre.</p>	<div data-bbox="1309 815 1649 1012" style="border: 2px solid red; padding: 5px; color: red; text-align: center;">Place a tick in one of the boxes</div> 	

Feedback on Activity



Exam	Question	Procedural	Problem solving
JCOL 2008	Q1 (c) (i)	100%	0%
	Q1 (c) (ii)	82%	18%
	Q1 (c) (iii)	27%	73%
LCOL 1997	Q2 (c) (i)	18%	82%
	Q2 (c) (ii)	0%	100%
LCHL 2006	5 (c) (i)	9%	91%
	5 (c) (ii)	0%	100%
JCHL 2005	6 (c) (i)	0%	100%
	6 (c) (ii)	27%	73%
PMPCHL SAMPLE 2010	Q8 (a)	0%	100%
	Q8 (b)	0%	100%
JCHL 2008	4 (c) (i)	82%	18%
	4 (c) (ii)	82%	18%
	4 (c) (iii)	55%	45%
	4 (c) (iv)	63%	37%

JC HL 2008



In a certain week, x people shared equally in a club lotto prize of €2000.

(i) Write down an expression in x for the amount that each person received.

The following week, $x + 1$ people shared equally in the prize of €2000.

(ii) Write down an expression in x for the amount that each person received that week.

In the second week, each winner received €100 less.

(iii) Write down an equation in x to represent the above information.

(iv) ✎ Solve this equation to find x .

JC HL 2008



Some

In a certain week, \hat{x} people shared equally in a club lotto prize of €2000.

- (i) Write down an expression in x for the amount that each person received.

one more person

The following week, $\hat{x}+1$ people shared equally in the prize of €2000.

- (ii) Write down an expression in x for the amount that each person received that week.

In the second week, each winner received €100 less.

- (iii) Write down an equation in x to represent the above information.

How many people shared the prize in the first week?

- (iv) ~~Solve~~ Solve this equation to find x .

JC HL 2006



A farmer must feed bales of hay to his cattle for a total of 90 days.
He feeds the cattle 540 bales of hay over a number of days.
Their average consumption over this period is x bales per day.

(i) Write an expression in x for the number of days taken to consume the 540 bales.

If the average consumption is increased by 1 bale per day, then the cattle consume 300 bales in the remaining days.

(ii) Write an expression in x for the number of days taken to consume the 300 bales.

(iii) Using the above information, write an equation in x .

(iv) Solve this equation to find the value of x and the number of days taken to consume the first 540 bales.

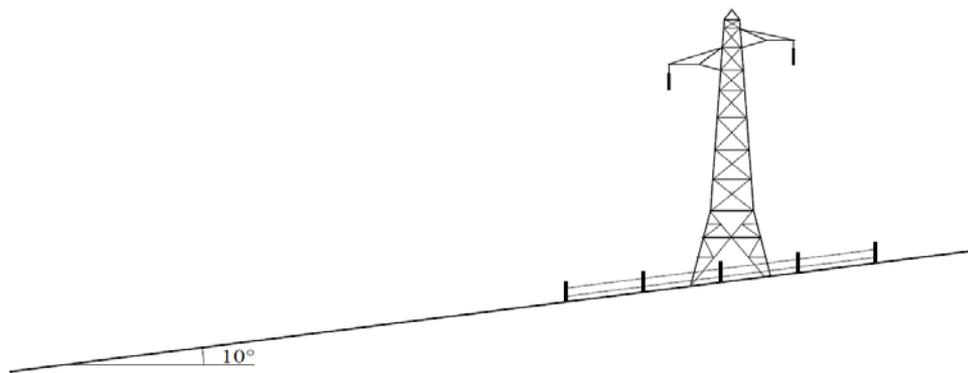
LC HL Sample Paper 2010

Two surveyors want to find the height of an electricity pylon. There is a fence around the pylon that they cannot cross for safety reasons. The ground is inclined at an angle. They have a clinometer (for measuring angles of elevation) and a 100 metre tape measure. They have already used the clinometer to determine that the ground is inclined at 10° to the horizontal.

- (a) Explain how they could find the height of the pylon.
Your answer should be illustrated on the diagram below.



Show the points where you think they should take measurements, write down clearly what measurements they should take, and outline briefly how these can be used to find the height of the pylon.



Pointers from the Trial Report



This question was not well answered. It appeared that candidates had **little experience of applying their mathematical knowledge in this way**. The trigonometry involved was not difficult and one would expect it to be well within the compass of moderately good candidates. However, at this stage, the candidates clearly have had **little experience of planning and undertaking field activities** or of discussing the practicalities of using trigonometry to solve real problems.

Part (a) (ii) required **verbal answers** rather than mathematical work. As with other such questions on the paper, for most candidates this **proved difficult**.

WS3.2 – Characteristics of Problem Solving



WS3.2 - List 3 characteristics of questions that are problem solving questions

1. _____

2. _____

3. _____

“Problem solving is solving non routine problems using skills that you have or gain in the solution of a problem which initially seemed unsolvable.”



When you read a sum.....

And you can't initially see your way to the end of the problem,

Just take the first step:

Draw a diagram or write out what you know.....

And trust that the answer will reveal itself to you

