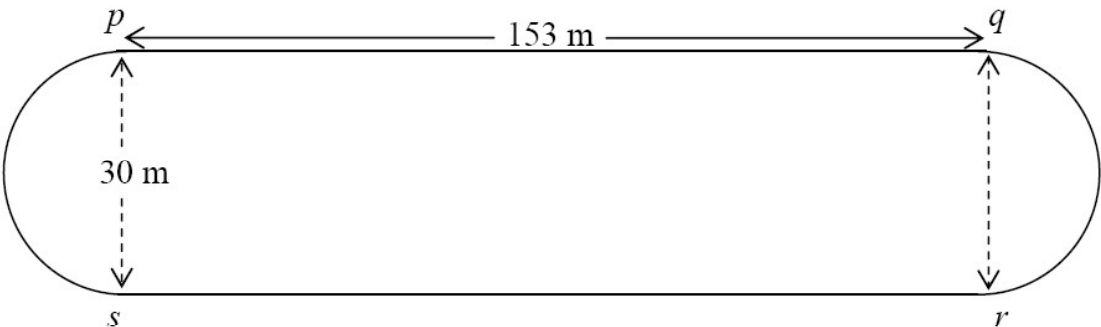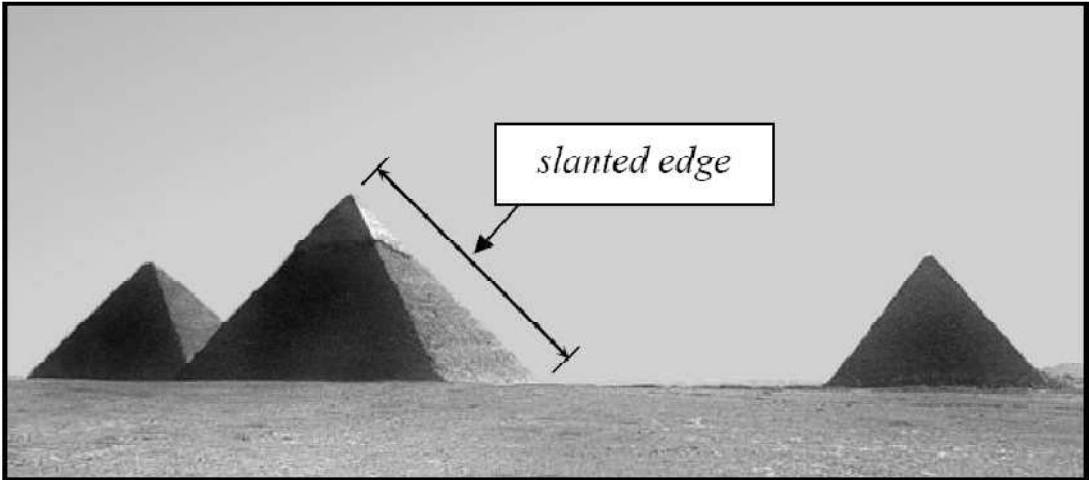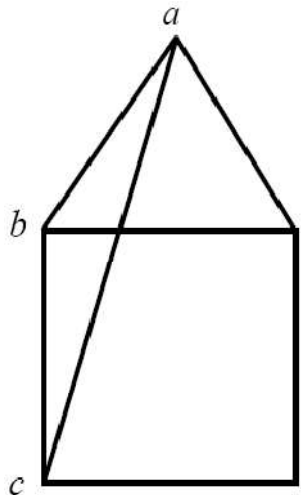# WS3.1 – *Problem Solving*

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	
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. Taking π as 3.14, calculate the length of one of the semi-circular ends, correct to the nearest metre.		

JCOL 2008 Q1 (c) (ii)	Procedural	
	Problem Solving	
Calculate the total length of one lap of the track, correct to the nearest metre.		

JCOL 2008 Q1 (c) (iii)	Procedural	
	Problem Solving	
Noirín ran a 5000 metre race on the above track in 15 minutes. Calculate, in seconds, the average time it took Noirín to complete one lap of the track during that race.		

LCOL 1997 Q2 (c) (i)	Procedural	
	Problem Solving	
The length and breadth of a rectangle are in the ratio 9:5, respectively. The length of the rectangle is 22.5 cm. Find its breadth.		

LCOL 1997 Q2 (c) (ii)	Procedural	
	Problem Solving	
Tea served in a canteen is made from a mixture of two different types of tea, type A and type B. Type A costs £4.05 per kg. Type B costs £4.30 per kg. The mixture costs £4.20 per kg. If the mixture contains 7kg of type A, how many kilograms of type B does it contain?		

| **LCHL 2006 Q5 (c) (i)** | Procedural | |
| | Problem Solving | |

The great pyramid at Giza in Egypt has a square base and four triangular faces. The base of the pyramid is of side 230 metres and the pyramid is 146 metres high. The top of the pyramid is directly above the centre of the base.

slanted edge

Calculate the length of one of the slanted edges, correct to the nearest metre.

| **LCHL 2006 Q5 (c) (ii)** | Procedural | |
| | Problem Solving | |

Calculate, correct to two significant figures, the total area of the four triangular faces of the pyramid (assuming they are smooth flat surfaces).

| **JCHL 2005 Q6 (c) (i)** | Procedural | |
| | Problem Solving | |

The diagram shows an equilateral triangle and a square, each of side 6.
a is joined to c.

Find $|\angle abc|$ and $|\angle bac|$.

| **JCHL 2005 Q6 (c) (ii)** | Procedural | |
| | Problem Solving | |

Find $|ac|$, correct to one decimal place.

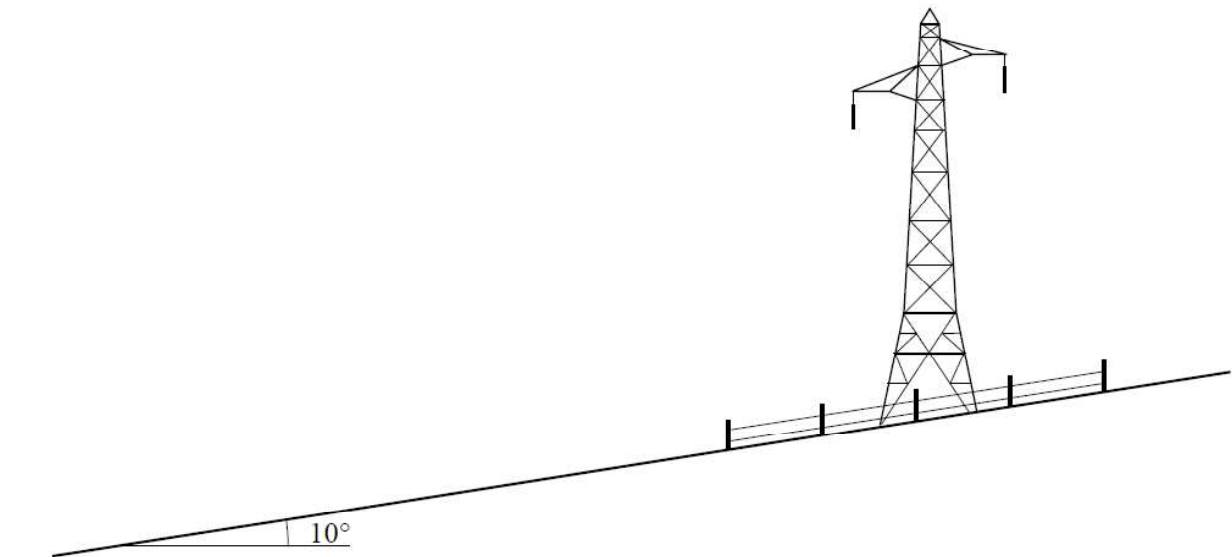| PMLCHL SAMPLE 2010 Q8 (a)	Procedural	
	Problem Solving	

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.

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.

Diagram:

Measurements to be taken:

Procedure used to find the height:

PMLCHL SAMPLE 2010 Q8 (b)	Procedural	
	Problem Solving	

Write down possible values for the measurements taken, and use them to show how to find the height of the pylon. (That is, find the height of the pylon using your measurements, and showing your work.)

JCHL 2008 Q4 (c) (i)	Procedural	
	Problem Solving	
In a certain week, *x* people shared equally in a club lotto prize of €2000. Write down an expression in *x* for the amount that each person received.		

JCHL 2008 Q4 (c) (ii)	Procedural	
	Problem Solving	
The following week, *x* + 1 people shared equally in the prize of €2000. Write down an expression in *x* for the amount that each person received that week.		

JCHL 2008 Q4 (c) (iii)	Procedural	
	Problem Solving	
In the second week, each winner received €100 less. Write down an equation in *x* to represent the above information.		

JCHL 2008 Q4 (c) (iv)	Procedural	
	Problem Solving	
Solve this equation to find the value of *x*.		

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

1. _____

_____

2. _____

_____

3. _____

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