

Student Worksheet 1 Solutions

TI-15 Explorer™: Area and Perimeter

WS1

Part 1

- Smallest perimeter 16 cm
 - Largest perimeter 34 cm
 - Smallest perimeter 18 cm
 - Largest perimeter 38 cm
 - Smallest perimeter 18 cm
 - Largest perimeter 42 cm
 - Smallest perimeter 22 cm
 - Largest perimeter 58 cm
 - Smallest perimeter 24 cm
 - Largest perimeter 74 cm
6. The rectangles with the smallest perimeters are the short fat ones, the long skinny rectangles have the longest perimeters.

Part 2

- Smallest area 7 cm^2
 - Largest area 16 cm^2
 - Smallest area 9 cm^2
 - Largest area 25 cm^2
 - Smallest area 13 cm^2
 - Largest area 49 cm^2
 - Smallest area 17 cm^2
 - Largest area 81 cm^2
 - Smallest area 19 cm^2
 - Largest area 100 cm^2
6. The rectangles with the largest areas are the short fat ones, the long skinny rectangles have the smallest areas.

Student Worksheet 2 Solutions

TI-15 Explorer™: Area and Perimeter

WS2

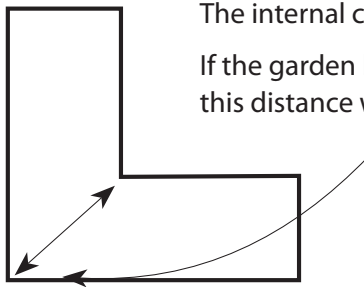
Solutions will vary greatly, a whole class look at the different designs, the garden area obtained and costs involved would be useful here.

Assessment Rubric					
	A	B	C	D	E
Task Criteria	The student has an extensive knowledge and understanding of the content and can readily apply this knowledge to solve unfamiliar problems.	The student has a thorough knowledge and understanding of the content and a high level of competence in the processes and skills.	The student has a sound knowledge and understanding of the main areas of content and has achieved an adequate level of competence in the processes and skills.	The student has a basic knowledge and understanding of the content and has achieved a basic level of competence in the processes and skills.	The student has an elementary knowledge and understanding in few areas of the content and has achieved very limited competence in some of the processes and skills.
Area and Perimeter Rubric for Nana's Garden					
<p>Nana's Garden</p> <p>Investigate the areas of rectangles and their perimeters and use this information to make informed decisions.</p> <p>Demonstrates an understanding of the concept of developing the most efficient solution (least cost maximum garden) that also meets the job criteria.</p>	<p>C + B +</p> <p>Designs a garden that meets the criteria and attempts to minimise cost and maximise garden bed area.</p> <p>This student will also recognise the problem of the internal corner and attempt to solve it.</p>	<p>C +</p> <p>Designs a garden that meets the criteria (except for the internal corners) and uses a correct method to calculate the cost of the garden.</p> <p><i>A correct method would be to calculate the area of concrete and multiply by \$25. Calculate the total perimeter of all the garden beds and multiply by 3 then by \$20.</i></p>	<p>Designs a garden that meets the criteria. I.e. the paths are 1m wide and the garden beds are within 1 m of a path (may not achieve this on an internal corner where Nana may have to reach up to 1.4 m along a diagonal).</p> <p>Students make an attempt to calculate the cost of their garden.</p>	<p>Designs a garden that meets one but not both criteria.</p> <p>The student attempts to calculate at least one of the costs.</p>	<p>This student is unable to relate the criteria required to the garden design. They may design a garden but it will have neither a correct garden bed or a correct size path.</p>

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WS2



The internal corner.

If the garden beds are 1 m wide then
this distance will be more than 1 m.

For solution diagrams and dimensions of the two cow pens refer to PowerPoint Slide 11.

Assessment Rubric					
	A	B	C	D	E
Task Criteria	The student has an extensive knowledge and understanding of the content and can readily apply this knowledge to solve unfamiliar problems.	The student has a thorough knowledge and understanding of the content and a high level of competence in the processes and skills.	The student has a sound knowledge and understanding of the main areas of content and has achieved an adequate level of competence in the processes and skills.	The student has a basic knowledge and understanding of the content and has achieved a basic level of competence in the processes and skills.	The student has an elementary knowledge and understanding in few areas of the content and has achieved very limited competence in some of the processes and skills.
Area and Perimeter Rubric for The Calf Paddock					
The Calf Paddock Investigate the areas of rectangles that have the same perimeter. Recognises that there may be more than one rectangle with the same perimeter. Selects and uses the appropriate unit to calculate area.	Correctly answers the extension task demonstrating that a shape measuring 18 m by 9 m (when one side is the hay shed) has the greatest area and supports this with evidence of a systematic strategy.	Identifies the shape with the greatest area (a 9 m by 9 m square) and supports answer with some evidence of a systematic strategy.	Correctly draws more than one shape (enclosure) with perimeter of 36 metres and correctly calculates area in m ² demonstrating a knowledge of perimeter and area.	Correctly draws at least one shape (enclosure) with perimeter of 36 metres and attempts to calculate the area in m ² demonstrating some knowledge of perimeter and area.	

A typical **systematic strategy** would be a table showing perimeter, or length and breadth or both with the appropriate areas and show the areas increasing to a maximum then decreasing as the perimeter changes.