Stage 1 General Mathematics – **Monique Wilton**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your design is simple, elegant, and befitting a queen chess piece. You have drawn your chess piece to scale with measurements clearly identified. Your estimation as a cylindrical shape (using the cylinder formula $πr^{2}h)$ was correct, as was your calculations for the actual volume of your shape based on your measurements. Just a note to include the mathematical notation ($cm^{3}$) at the end of your final volume of 45,112.48.Your surface area calculations we correct if you were calculating the surface area of each individual element of the chess piece, however, the question was quite specific “this area includes all surfaces that are exposed to the air” and apart from the sphere in the top of the queen, every calculation needed adjusting to take this into consideration. Your calculations for concrete you will need is accurate – one bag @ $34.95.Your calculation for paint you will need has been based on the surface area – which includes all the additional surfaces not exposed to air. If one tin of paint can cover 16 $m^{2}$ or 160,000 $cm^{2}$, then to paint 40,190 $cm^{2}$ one can of paint will be required only @ $27.25.Both your introduction and conclusion has been well written, and although a challenging exercise, I am glad you put the effort in to produce a great piece of work. |

Stage 1 General Mathematics – **Phoebe Pitcher**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**The design of your king chess piece was well done, it is a complex piece with some difficult calculations. You have drawn your chess piece to scale with clear measurements and each piece individually identified Your estimation as a cylindrical shape (using the cylinder formula $πr^{2}h)$ was correct, as were your calculations for the actual volume of your shape. Just a note that *shape 4* in your scale diagram looks like it has a base of 11 cm instead of 22 cm.Your surface area calculations we correct – for the surfaces exposed to air, and to be painted. Your calculations for concrete are correct if you multiply the volume by .0823 not 0.823 – and this change will result in only one bag of concrete required at a cost of $34.95.If one tin of paint can cover 16 $m^{2}$ or 160,000 $cm^{2}$, then to paint 8239.12 $cm^{2}$ will require one can of paint only @ $27.25.Both your introduction and conclusion were very well written and overall an excellent piece of work. |

Stage 1 General Mathematics – **Lauren Cadieux**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**The design for your rook (castle) is innovative with some challenging additions. Both your 3D and scale diagram are accurate with measurements clearly identified. Your estimations as a prism are correct (using the formula *base x width x height*$)$. Your use of millimetres (mm) throughout your report made the calculations too large to perform, and I suggest $cm^{2}or cm^{3}$ would have made it easier for you.Most of your volume calculations were correct, although there were a few simple errors that you could easily address. Further, your surface area calculations we correct if you were calculating the surface area of each individual element of the chess piece, however, the question was quite specific “this area includes all surfaces that are exposed to the air” and apart from the rectangle base, each calculation needs to be adjusted.Your calculations for painting the surface area (adjusted to remove surfaces not painted) are correct, however, a simple mistake on the calculations for your concrete volume meant that you would be purchasing way more than you need.Your introduction and conclusion have been well written, and your hand-written notes are neat and readable throughout making it a pleasure to read and mark – well done! |

Stage 1 General Mathematics – **Paris Samwell**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your bishop chess piece is entirely appropriate for a garden outdoor chess set. You have drawn your chess piece to scale with measurements clearly identified. Your estimation as a cylindrical shape (using the cylinder formula $πr^{2}h)$ was correct, as were most of your volume and surface area calculations – with a minor mistake here and there. You took notice to the requirement to calculate all surfaces that are exposed to the air with clear calculations to remove the sides and tops of shapes not exposed – and not required to be painted.Your calculations for the concrete require some adjustment.Your calculation for the paint accurate - if one tin of paint can cover 16 $m^{2}$ or 160,000 $cm^{2}$, then to paint 13,088.9 $cm^{2}$ only requires one can of paint @ $27.25.Both your introduction and conclusion has been well written, and some honest self-reflection. I am glad you put the effort in to produce a great piece of work. |

Stage 1 General Mathematics – **Zoe Badams**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your chess piece is entirely appropriate for a garden outdoor chess set. You have drawn your chess piece to scale with measurements clearly identified and I particularly like your 3D image. Your estimation of the volume of a rectangle prism shape (using the f$ormula base x width x height)$ was correct.Your calculations for the actual volume of your shape was incorrect and requires some adjustment as it affects your calculations for the cost of concrete.Your surface area calculations we correct if you were calculating the surface area of each individual element of the chess piece, however, the question was quite specific “this area includes all surfaces that are exposed to the air” and apart from the sphere on the top, every calculation needed adjusting to take this into consideration.You did not include any calculations for the concrete or the surface paint.While this was a challenging exercise, well done for putting in the effort. |

Stage 1 General Mathematics – **Aeisha Arnold**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your chess piece is a simple but effective design that provides diversity of shape and suits an outdoor chess set. You have drawn your chess piece to scale with measurements clearly identified and I like your 3D diagrams.Your estimation as rectangle prism shape (using the f$ormula base x width x height)$ is correct, as were most of your volume calculations – with a few minor mistakes. Your surface area calculations we correct if you were calculating the surface area of each individual element of the chess piece, however, the question was quite specific “this area includes all surfaces that are exposed to the air” and apart from the sphere on the top, every calculation needed adjusting to take this into consideration.Your calculations for both the concrete and paint require adjustment.Your calculation for paint you will need is accurate - if one tin of paint can cover 16 $m^{2}$ or 160,000 $cm^{2}$, then to paint 13,088.9 $cm^{2}$ only requires one can of paint @ $27.25.Both your introduction and conclusion provide both context and evaluation – overall good work. |

Stage 1 General Mathematics – **Olivia Weller**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your chess piece is creative, provides diversity of shape and suits an outdoor chess set. You have drawn your chess piece to scale with measurements clearly identified.Your estimation as a rectangle prism shape with a cylinder on top were correct. Your calculations for the volume were mostly accurate – with a few minor mistakes. Your surface area calculations we correct if you were calculating the surface area of each individual element of the chess piece, however, the question was quite specific “this area includes all surfaces that are exposed to the air” and apart from the sphere on the top, every calculation needed adjusting to take this into consideration.As a result, your calculations for both the concrete and paint require adjustment.While your introduction and conclusion provided both context and evaluation, your report was difficult to read, and it looked more like a draft than a completed product. |

Stage 1 General Mathematics – **Shem Hall**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your design is very creative, complex and an excellent addition to any outdoor chess set. You have drawn your chess piece to scale with measurements clearly identified. You missed the requirement to provide an estimation for a similar piece, and you calculated piece 4 and 6 as spheres instead of semi-circle prisms – having an impact on your calculations for both the concrete and paint. Your surface area calculations we correct if you were calculating the surface area of each individual element of the chess piece, however, the question was quite specific “this area includes all surfaces that are exposed to the air” and every calculation needed adjusting to take this into consideration.Your calculations for both the concrete and surface area need adjustment – it should be one bag of concrete and 1 tin of paint.Your overall report was well compiled, and the complexity of the design provided significant challenges for you as alluded to in your report – overall a good effort. |

Stage 1 General Mathematics – **Daisy Mansfield**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your bishop chess piece design is simple but entirely appropriate for an outdoor garden chess set. You have drawn your chess piece to scale with measurements clearly identified. Your estimation was largely correct with a few minor errors, and your idea of removing the tops of the cones was a good attempt.Your surface area calculations we correct, and I was particularly happy to note that you followed the specific instruction “this area includes all surfaces that are exposed to the air”.Your calculations for both the concrete and the paint were correct, and one of each should do the trick!Both your introduction and conclusion has been well written, and although a challenging exercise, I am glad you put the effort in to produce a great piece of work! |

Stage 1 General Mathematics – **Colin Kennett**

Mathematical Investigation (**Outdoor Chess Piece**)

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| **CommenTS:**Your rook chess piece design looks simple enough but the added ‘bird bath’ element adds considerable complexity and becomes entirely appropriate for an outdoor garden chess set. You have drawn your chess piece to scale with measurements clearly identified. Your calculations of the estimate, volume and surface area were all correct, although I would just like to see the formulas that you have used in your calculations.I was particularly happy to note that you followed the specific instruction “this area includes all surfaces that are exposed to the air” to calculate surface area.Your calculations for the concrete are correct – but I think one can of paint (covering 16 sqm) should do the trick!Both your introduction and conclusion have been well written, and although a challenging exercise, I am glad you put the effort in to produce this outstanding piece of work! |