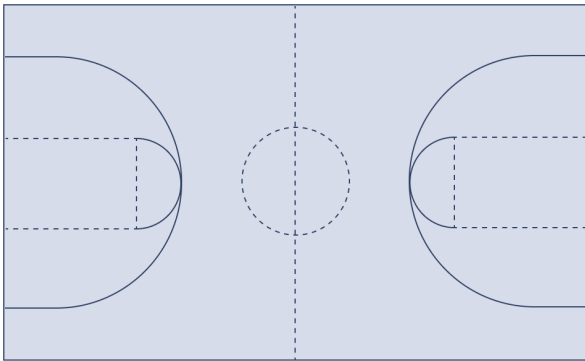


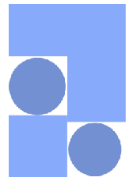
Resurfacing the Basketball Court

Pricing out the paint

Assessment Type	Modelling task	Grade Level	MYP 2 (Grade 7)
Criterion Assessed	Criterion D: Applying mathematics in real-life contexts	Key Concept	Logic
Related Concept(s)	Quantity, Generalization	Global Context	Globalization and Sustainability
Branch of Mathematics	Spatial Reasoning, Numeric and Abstract Reasoning		
Topics and Skills	Area, unit rates, and cost modeling		
Assessment Description	Students act as consultants advising the school on resurfacing the basketball court. In Part A, they calculate area, determine paint quantities needed, and check the project against a budget. In Part B, they extend their model to compare two paint options over an 8-year period, factoring in reapplication frequency, then justify a recommendation to the school while evaluating the accuracy and reasonableness of their model.		
Materials Needed	Calculator, ruler		

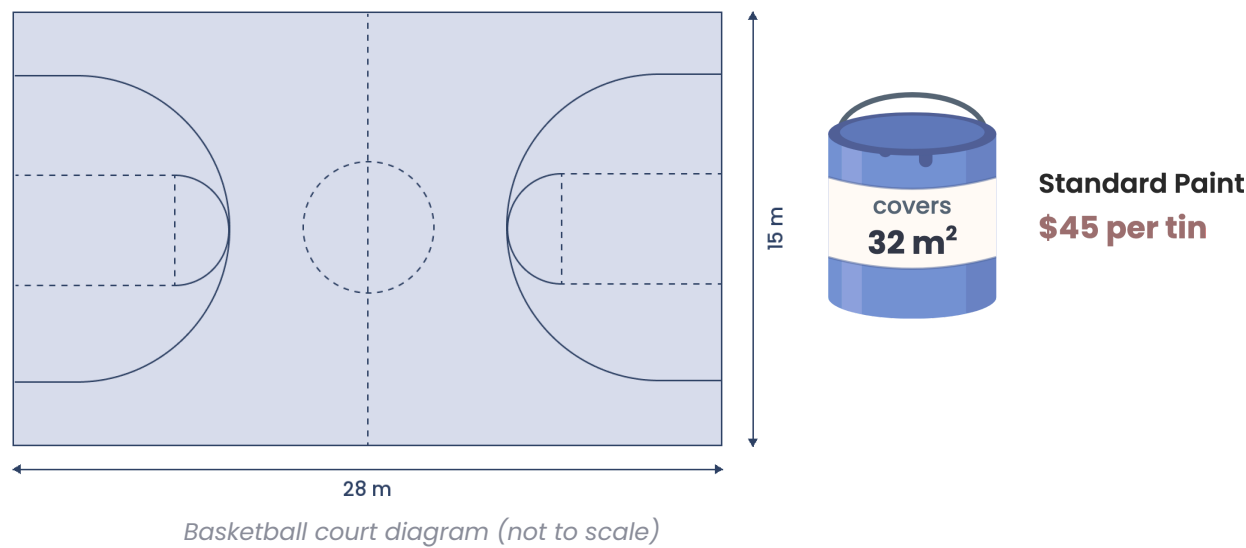


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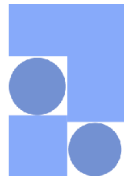
PART A: Resurfacing the Basketball Court

The school basketball court, which measures 28 m by 15 m, needs to be resurfaced. The maintenance company sells resurfacing paint in tins that each cover 32 m² and cost \$45 per tin. The school has a budget of \$650 for this project.



Question 1

Identify the information you will need from this situation to solve the problem, and any assumptions you will make.

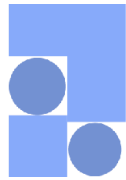


Question 2

Determine how many tins of paint are needed, and whether the project stays within budget.

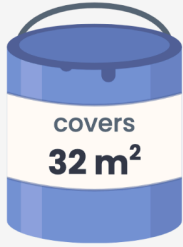
Question 3

Justify why you rounded the number of tins the way you did, and explain whether your final answer is reasonable in this context.



PART B: Comparing Paint Options

The maintenance company actually offers two paint options for the court:



Standard Paint
\$45 per tin
covers **32 m²**
Reapply every 2 years

vs

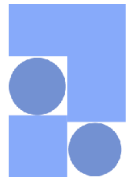


Premium Paint
\$68 per tin
covers **40 m²**
Reapply every 4 years

The school wants to know which option is the better long-term choice over the next 8 years, not just which one is cheaper right now.

Question 4

Using your method from Part A, determine the cost of resurfacing the court once with Premium Paint.

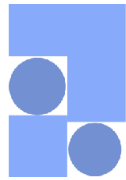


Question 5

Compare the total cost of using Standard Paint versus Premium Paint over an 8-year period, taking into account how often each paint needs to be reapplied. Record your working in the table below.

	Cost per application	Number of applications in 8 years	Total cost over 8 years
Standard Paint			
Premium Paint			

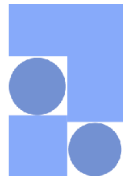
Show your working for each row here:



Question 6

Analyse your results and write a recommendation to the school. Include:

- Recommend which paint option the school should use.
- **Justify** your recommendation using your calculations.
- **Comment** on the degree of accuracy of your comparison.
 - Consider your rounding from Part A and Part B. **Explain** how this rounding affects total costs in your table.
- **Explain** whether your recommendation makes sense in context.
 - Your comparison assumes prices per tin and reapplication schedule stays exactly the same for all 8 years. Is this a realistic assumption? Why or why not?



Criterion D: Applying mathematics in real-life contexts	
Level	Task-specific clarification
7-8	<ul style="list-style-type: none">i. Identifies all relevant elements of the situation (court dimensions, tin coverage, cost per tin, budget, reapplication frequency) and states clear, appropriate assumptions (e.g., no paint wastage or overlap, whole tins only).ii. Selects and applies efficient, well-organized strategies to calculate area, unit rates, and total costs for both paint options across the full 8-year period.iii. Correctly applies the selected strategies to reach valid, accurate solutions for the number of tins needed, the budget check, and the 8-year cost comparison.iv. Justifies the degree of accuracy of the solution (e.g., discusses rounding tins up)v. justifies, with clear reasoning tied to the calculations, whether the recommendation makes sense in context.
5-6	<ul style="list-style-type: none">i. Identifies most relevant elements of the situation and states mostly appropriate assumptions.ii. Selects mostly appropriate strategies to calculate area, unit rates, and total costs for both paint options.iii. Applies the selected strategies to reach generally correct solutions, with minor errors that do not significantly affect the outcome.iv. Describes the degree of accuracy of the solution.v. States whether the recommendation makes sense, with some reference to the calculations.
3-4	<ul style="list-style-type: none">i. Identifies some relevant elements of the situation and states simple or partially appropriate assumptions.ii. Selects strategies that are partially appropriate to calculate area, unit rates, or total costs.iii. Applies the selected strategies to reach a solution, with errors that affect the validity of the outcome.iv. Attempts reasonableness of the solution, with limited reference to the calculations.
1-2	<ul style="list-style-type: none">i. Identifies minimal elements of the situation, with few or no assumptions stated.ii. Attempts to select and apply a strategy, to find a solution, with limited success.