

Unit Project Grade 7 Math Statistics Manual

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Welcome to your comprehensive guide on Unit Project Grade 7 Math Statistics. This guide aims to help students understand the fundamentals of statistics, develop analytical skills, and successfully complete their projects. Whether you're just starting or looking to deepen your understanding, this article provides an organized overview of key concepts, project ideas, and tips to excel in your statistics unit.

Understanding the Basics of Statistics

Statistics is a branch of mathematics that involves collecting, analyzing, interpreting, presenting, and organizing data. For 7th-grade students, grasping these fundamental concepts is essential as they provide the foundation for more advanced math topics.

What is Data?

Data refers to information collected for analysis. It can be:

- Numerical (quantitative): e.g., heights, test scores
- Categorical (qualitative): e.g., favorite color, types of sports played

Types of Data

Understanding data types helps in choosing the right analysis methods:

- **Discrete Data:** Countable data such as the number of students in a class.
- **Continuous Data:** Data that can take any value within a range, like temperature or weight.

Data Collection Methods

Effective data collection is crucial for accurate analysis:

- Surveys and questionnaires
- Observations

- Experiments
- Interviews

Key Concepts in Grade 7 Math Statistics

To complete your unit project successfully, understanding the following concepts is essential.

Measures of Central Tendency

These are statistical measures that describe the center point of a data set.

- **Mean:** The average of all data points.
- **Median:** The middle value when data is ordered.
- **Mode:** The most frequently occurring value.

Measures of Variability

These indicate how spread out the data is.

- **Range:** Difference between the highest and lowest values.
- **Variance:** Average of squared differences from the mean.
- **Standard Deviation:** Square root of variance, indicating data spread.

Data Representation

Visual tools help in understanding data patterns.

- **Bar Graphs:** Show comparisons among categories.
- **Histograms:** Display frequency distributions of continuous data.
- **Pie Charts:** Show proportions of categories in a whole.
- **Line Graphs:** Show trends over time.

Interpreting Data

Critical thinking is required to analyze what the data reveals:

- Identifying patterns or trends

- Recognizing outliers
- Making predictions based on data

Choosing a Project Topic

Selecting an engaging and manageable topic is vital for a successful project. Here are some ideas suitable for Grade 7 students:

Sample Project Ideas

- Analyzing the heights of classmates and calculating average, median, and mode.
- Surveying favorite sports among friends and presenting the results with pie charts.
- Tracking daily temperatures over a week and creating line graphs.
- Counting the number of different types of pets in your neighborhood.
- Examining the number of hours spent on homework per day.

Tips for Choosing a Topic:

- Pick something interesting and relevant.
- Ensure you can collect enough data.
- Make sure the data is manageable for analysis.

Steps to Complete Your Unit Project

A structured approach helps in organizing your work efficiently.

1. Define Your Question

Start with a clear question or hypothesis. For example, "What is the average number of hours students sleep on weekdays?"

2. Collect Data

Gather data methodically:

- Design surveys or questionnaires if needed.
- Use observations or measurements where applicable.
- Record data accurately and organize it systematically.

3. Organize and Summarize Data

Create tables to display your data clearly. Calculate basic statistics:

- Mean
- Median
- Mode
- Range

4. Create Visual Representations

Use appropriate charts or graphs:

- Bar graphs for categorical data
- Histograms for distribution of continuous data
- Pie charts for proportions

5. Analyze and Interpret Results

Answer questions like:

- What does the data tell you?
- Are there any noticeable trends or patterns?
- Were there any surprising findings?

6. Draw Conclusions

Summarize your findings and reflect on the original question. Discuss possible reasons for your results and suggest further questions or investigations.

7. Present Your Project

Prepare a report or presentation with:

- An introduction explaining your project.
- Data collection methods.
- Data analysis and visualizations.

- Conclusions and reflections.

Tips for Success in Your Grade 7 Math Statistics Project

- Plan Ahead: Allocate time for each step, from data collection to presentation.
- Be Accurate: Record data carefully and double-check calculations.
- Use Visuals Effectively: Clear, labeled charts make data easier to understand.
- Explain Your Work: Write clear explanations for your analysis and conclusions.
- Ask for Help: Consult teachers, classmates, or family members if you need guidance.

Additional Resources and Tools

To aid in your project, consider using the following resources:

- Online graphing tools: Google Sheets, Microsoft Excel, or free websites like ChartGo or Meta-Chart.
- Statistical calculators: For quick calculations of mean, median, mode, etc.
- Educational websites: Khan Academy, IXL, and other online platforms offer tutorials on statistics.

Conclusion

Understanding and applying the concepts of statistics is a vital part of Grade 7 math education. Your unit project is a wonderful opportunity to explore real-world data, develop critical thinking, and communicate your findings effectively. Remember to choose a topic that interests you, follow a systematic approach, and utilize visual tools to present your data compellingly. With careful planning and execution, your project can be both educational and enjoyable!

Good luck with your Grade 7 Math Statistics unit project!

Unit Project Grade 7 Math Statistics: A Comprehensive Guide to Mastering Data Analysis

In Grade 7 math, one of the most engaging and practical topics students encounter is statistics. This unit project not only helps students understand how to collect, analyze, and interpret data but also teaches valuable skills applicable in everyday life and future academic pursuits. Successfully completing a unit project on Grade 7 math statistics requires a solid grasp of foundational concepts, effective planning, and clear communication of findings. This guide aims to walk educators and students through the essential components of such a project, offering step-by-step instructions, tips, and best practices to ensure a thorough understanding and successful execution.

Understanding the Importance of Statistics in Grade 7 Math

Statistics is the science of collecting, analyzing, interpreting, presenting, and organizing data. In Grade 7, students begin to encounter more complex concepts such as measures of center (mean, median, mode), measures of spread (range, interquartile range, mean absolute deviation), and basic probability. These skills are fundamental in making informed decisions based on data and understanding how data influences various fields like science, economics, and social studies.

Why is the unit project important?

- It synthesizes learning by applying theoretical concepts to real-world scenarios.
- It enhances critical thinking and problem-solving skills.
- It fosters teamwork, communication, and presentation skills.
- It prepares students for higher-level math courses and practical data literacy.

Planning Your Grade 7 Math Statistics Unit Project

Successful projects start with solid planning. Here's a step-by-step guide to organizing your project:

- Selecting a Topic

Choose a subject that interests you and has accessible data. Possible topics include:

- Favorite sports teams or players
- Daily weather patterns in your city
- School cafeteria food preferences
- How many hours students sleep on school nights
- The number of books read by classmates

Tip: Ensure your topic is broad enough to gather sufficient data but focused enough to analyze thoroughly.

- Formulating a Question or Hypothesis

Define what you want to find out. Examples include:

- What is the average number of hours students sleep on weekdays?
- Which snack is most popular among students?
- Is there a correlation between study time and test scores?

A clear question guides your data collection and analysis.

- Collecting Data

Decide on methods:

- Surveys or questionnaires
- Observations
- Research from credible sources

Ensure your data collection is:

- Ethical (respect privacy)
- Clear and unbiased
- Sufficient in sample size for meaningful results

- Organizing Data

Create tables or charts to organize your raw data. Use spreadsheet tools or graph paper for manual work.

Analyzing Data: Key Concepts and Techniques

Once data is collected, the next step involves analysis. This is where statistical tools come into play.

- Measures of Central Tendency

These describe the center of your data set:

- Mean: Sum of all data points divided by the number of data points.
- Median: The middle value when data points are ordered.

- Mode: The most frequently occurring value.

- Measures of Spread

These describe how spread out the data is:

- Range: Difference between the highest and lowest values.

- Interquartile Range (IQR): Difference between the third quartile (Q3) and the first quartile (Q1), representing the middle 50%.

- Mean Absolute Deviation (MAD): Average distance of each data point from the mean.

- Creating Graphs and Charts

Visual representations help interpret data:

- Bar graphs

- Histograms

- Pie charts

- Line graphs

Tip: Choose the type of graph that best represents your data and makes patterns clear.

Interpreting Results and Drawing Conclusions

After analyzing your data, interpret what it means:

- Is there a trend or pattern?

- Are there outliers or anomalies?

- Do the data support your original hypothesis or question?

Discuss possible reasons for your findings and their implications.

Communicating Your Findings

A critical part of the unit project is presenting your work. Structure your report or presentation to include:

- Introduction: State your question or hypothesis.
- Methodology: Describe how you collected and organized data.
- Results: Present your analysis with charts and summaries.
- Conclusion: Summarize findings, answer your question, and suggest possible next steps or questions.

Use clear language and visuals to make your presentation accessible to your audience.

Tips for Success in Your Grade 7 Math Statistics Project

- Plan ahead: Allocate time for each phase?research, data collection, analysis, and presentation.
- Verify your data: Double-check data entries and calculations.
- Be honest: Report all findings, even if they don't support your hypothesis.
- Practice visuals: Ensure charts are labeled clearly and accurately.
- Seek feedback: Share drafts with teachers or classmates for constructive criticism.

Common Challenges and How to Overcome Them

- Insufficient Data

Solution: Broaden your data collection methods or increase sample size to improve reliability.

- Misinterpretation of Data

Solution: Review statistical concepts regularly and consult resources or teachers when unsure.

- Difficulties with Graphs

Solution: Use templates and follow guidelines for creating clear, accurate visuals.

Conclusion: Building Confidence in Data Analysis

A unit project on Grade 7 math statistics is more than just an assignment; it's an opportunity to develop critical skills that are essential in today's data-driven world. By understanding how to collect, analyze, and present data effectively, students gain confidence and competence in mathematical reasoning and communication. Remember, the key to success lies in thoughtful planning, careful analysis, and clear presentation. Embrace the challenge, and you'll not only

complete a successful project but also lay a strong foundation for future math and data literacy skills.

Ready to get started? Choose your topic, formulate your question, and dive into the exciting world of statistics!

Question What is the main goal of a unit project in Grade 7 Math Statistics? The main goal is to help students understand and analyze data by collecting, organizing, interpreting, and presenting statistical information through a comprehensive project. How should students choose a topic for their statistics project? Students should select a topic that interests them, involves data collection, and allows for meaningful analysis, such as sports statistics, survey results, or population data. What types of data can be used in a Grade 7 statistics project? Students can use qualitative data (categories), quantitative data (numbers), discrete data (countable), or continuous data (measurable). What are common ways to organize data for a statistics project? Data can be organized using tables, frequency distributions, histograms, bar graphs, pie charts, or line graphs to make analysis easier. How do you interpret the mean, median, and mode in a statistics project? The mean is the average, the median is the middle value when data is ordered, and the mode is the most frequently occurring value; these measures help summarize data trends. What is the importance of creating visual representations like graphs in a statistics project? Visual representations help to clearly communicate data patterns, make comparisons easier, and support conclusions drawn from the data. How can students ensure their statistics project is accurate and reliable? Students should collect sufficient and unbiased data, double-check their calculations, and use appropriate graphs and summaries to support their findings. What are some real-world applications of statistics that students can explore in their project? Students can explore topics like sports performance, election polling, weather patterns, or school survey results to see how statistics are used in everyday life. How does analyzing data in a project help develop critical thinking skills? Analyzing data encourages students to ask questions, recognize patterns, identify outliers, and make informed conclusions, fostering critical thinking and problem-solving abilities.

Related keywords: unit project, grade 7 math, statistics, data analysis, measures of central tendency, mean, median, mode, range, data collection

pixl maths papers grade boundaries

pixl maths papers grade boundaries are a crucial aspect for students, teachers, and parents navigating the GCSE examination process. Understanding how grade boundaries are determined and what they mean for exam performance can help students set realistic goals, prepare effectively, and interpret their results accurately. In this comprehensive guide, we will explore the concept of grade boundaries in PIXL Maths papers, how they are calculated, and how to use this information to

maximize success in your exams.

What Are Pixl Maths Papers Grade Boundaries?

Grade boundaries in Pixl Maths papers refer to the minimum marks required to achieve a specific grade. These boundaries are set by exam boards after the exams are marked, based on various statistical analyses, to ensure fairness and consistency across different exam sessions. They serve as a threshold system: if a student scores above a certain mark, they will be awarded the corresponding grade.

Why Are Grade Boundaries Important?

- **Assessment of Performance:** Grade boundaries provide a clear benchmark to assess student achievement relative to their peers.
- **Understanding Results:** They help students interpret their raw scores, understanding whether they have met the criteria for their target grades.
- **Preparation Planning:** Knowledge of grade boundaries can influence revision strategies, focusing on areas that are more likely to push scores into higher grade brackets.
- **Fairness and Standardization:** They ensure that results are comparable across different exam sessions, accounting for variations in exam difficulty.

How Are Pixl Maths Grade Boundaries Calculated?

Grade boundaries are not arbitrary; they are based on rigorous statistical analysis of exam performance. The process involves multiple steps:

1. Post-Exam Marking and Data Collection

After exams are completed, examiners mark the scripts and record the raw scores for each student. This data collection forms the foundation for analysis.

2. Standard Setting and Statistical Analysis

Qualified experts and examiners analyze the data to determine the distribution of scores. They consider factors such as:

- Overall exam difficulty
- Student performance trends
- Historical data from previous years

Using statistical methods, they establish cut-off points that differentiate between grades.

3. Adjustments for Fairness

To ensure fairness, adjustments may be made to account for variations in exam difficulty or unexpected events. The goal is to maintain consistency in grading standards year after year.

4. Publication of Grade Boundaries

Once finalized, exam boards publish grade boundaries online, often shortly after results are released, providing transparency for students and educators.

Typical Grade Boundaries for Pixl Maths Papers

While grade boundaries can fluctuate annually based on exam difficulty and student performance, typical ranges can serve as helpful benchmarks. Below is an overview of approximate grade boundaries based on historical data for Pixl GCSE Maths papers:

Foundation Tier (Grades 1-5)

- Grade 1: 10-20 marks
- Grade 2: 21-30 marks
- Grade 3: 31-40 marks
- Grade 4: 41-50 marks
- Grade 5: 51-60 marks

Higher Tier (Grades 4-9)

- Grade 4: 55-65 marks
- Grade 5: 66-75 marks
- Grade 6: 76-85 marks
- Grade 7: 86-95 marks
- Grade 8: 96-105 marks
- Grade 9: 106-115+ marks

Note: These are approximate figures; actual boundaries vary annually. Always check the official grade boundary releases for precise information.

How to Use Pixl Maths Grade Boundaries Effectively

Understanding grade boundaries is just the first step. Here's how students can leverage this knowledge for better exam preparation and interpretation:

1. Set Realistic Targets

Based on your current performance and the known grade boundaries, set achievable goals for each exam. For example, if you aim for a Grade 5, plan to score at least 55-60 marks.

2. Focus on Marginal Areas

Identify which questions or topics tend to be borderline for your target grade. Focus revision on these areas to push your scores higher.

3. Use Past Papers and Mark Schemes

Practicing with past Pixl Maths papers helps you familiarize yourself with question styles and difficulty levels, giving you a sense of where your scores stand relative to grade boundaries.

4. Analyze Your Mock Results

Compare your mock exam scores with the grade boundaries to determine how close you are to your target grades. This can guide your revision priorities.

5. Stay Informed

Keep an eye on official updates from Pixl and other exam boards regarding grade boundary changes each year to adapt your expectations and strategies accordingly.

Tips for Achieving Higher Grades in Pixl Maths Exams

Achieving a higher grade boundary requires strategic preparation. Here are some tips:

Practice Regularly

Consistent practice with past papers improves problem-solving speed and accuracy, essential for maximizing marks.

Identify Weak Areas

Use feedback from mock exams and practice papers to focus revision on topics where you lose the most marks.

Master Key Concepts and Techniques

Solid understanding of fundamental concepts and formulae enables quicker problem-solving and reduces mistakes.

Time Management Skills

Practice completing papers within the allotted time to ensure you can attempt all questions confidently.

Seek Help When Needed

Don't hesitate to ask teachers or tutors for clarification on difficult topics, ensuring your understanding is thorough.

Conclusion

Pixl Maths papers grade boundaries are a vital component of GCSE assessment that help define the standards required for each grade. While these boundaries can fluctuate annually, understanding how they are set and what they mean for your performance can significantly influence your revision approach and exam strategy. By practicing past papers, setting realistic goals, and staying informed about official grade boundary releases, students can optimize their chances of achieving their desired grades. Remember, success in GCSE Maths is not just about crossing a specific boundary but about consistent effort, strategic preparation, and a clear understanding of the grading standards.

Always refer to the official Pixl website or your exam centre for the most current grade boundary figures and updates. With the right preparation and awareness, you can confidently aim for the grades you aspire to and demonstrate your full potential in your Pixl Maths exams.

Pixl Maths Papers Grade Boundaries: A Comprehensive Guide for Students and Educators

Understanding the Pixl Maths papers grade boundaries is essential for students aiming to gauge their performance accurately and for teachers preparing students effectively. Grade boundaries serve as the benchmark scores that determine whether a student receives a particular grade, such as a pass, merit, or distinction. With the evolving nature of assessment standards and the unique structure of Pixl qualifications, it is crucial to analyze how these boundaries are set, what factors influence them, and how students can interpret them to better prepare for their exams. This guide provides an in-depth look into Pixl Maths papers grade boundaries, offering insights, practical tips, and a detailed breakdown to help both students and educators navigate this important aspect of the assessment process.

What Are Pixl Maths Papers Grade Boundaries?

Definition and Purpose

Grade boundaries for Pixl Maths papers are the minimum scores required to achieve specific grades in the qualification. They are not fixed and can vary year by year depending on several factors, including the difficulty level of the exam and overall student performance.

How Are Grade Boundaries Determined?

The process of setting grade boundaries involves a combination of statistical analysis and examiner judgment. Typically, the awarding body, in this case, Pixl, conducts a standard-setting process that considers:

- Exam difficulty: If an exam is particularly challenging, grade boundaries may be adjusted downward to reflect the higher difficulty.
- Candidate performance: The distribution of marks achieved by all students influences where boundaries are set.
- Historical data: Past performance data helps inform where boundaries should lie to maintain consistent standards over time.
- Standardization: Ensuring fairness and consistency across different exam sessions and cohorts.

When Are Grade Boundaries Released?

Pixl usually publishes the grade boundaries shortly after the exam series concludes and the marking process is complete. This typically occurs within a few weeks, providing students and teachers with clarity on performance standards.

The Importance of Understanding Grade Boundaries

For Students

- Performance Assessment: Knowing grade boundaries helps students understand how well they need to perform to achieve their target grade.
- Effective Revision: By analyzing previous boundaries, students can identify the level of accuracy required in their responses.
- Goal Setting: Clear boundaries enable students to set realistic goals and focus their revision efforts.

For Educators

- Assessment Planning: Teachers can design lessons and practice questions aligned with current grade boundary standards.
- Feedback & Support: Understanding boundaries allows for better feedback and targeted interventions for students near the pass or merit thresholds.
- Data Analysis: Comparing cohort performance against boundaries helps assess the effectiveness of teaching strategies.

Trends and Insights in Pixl Maths Grade Boundaries

Variability Over Years

Grade boundaries tend to fluctuate annually due to varying exam difficulties and student performances. For example:

- In some years, boundaries for a Grade 4 (standard pass) may be set around 50%, while in others, they might be higher or lower depending on exam difficulty.
- The boundaries for higher grades like Grade 7 or 8 are generally more stable but can still shift slightly.

Impact of Exam Style and Content

Changes in exam style, such as increased emphasis on problem-solving or application-based questions, can influence the grade boundaries. More challenging questions may lower the boundaries needed for passing grades, while raising the bar for top grades.

Comparing Pixl to Other Exam Boards

While each awarding body sets its own boundaries, Pixl's standards are generally aligned with other GCSE Maths exam boards. However, students should always consult the specific boundaries published for their exam series to ensure accurate understanding.

How to Find the Latest Pixl Maths Papers Grade Boundaries

Official Sources

- Pixl's Exam Website: The most reliable and up-to-date information is available directly from

Pixl's official website or the exam administration portal.

- Published Reports: After each exam series, Pixl publishes grade boundaries in official reports accessible to schools and students.

School Support

- Teachers and school exam officers often have access to grade boundary data and can provide insights tailored to specific cohorts.

- Many schools also distribute grade boundary information through revision sessions or exam prep materials.

Online Resources and Forums

- Educational forums and revision sites often compile and discuss recent grade boundaries, especially post-exam.

- However, always verify the authenticity of this information against official sources.

Practical Tips for Students: Making the Most of Grade Boundary Information

- Review Past Boundaries: Analyze previous years' grade boundaries to understand the level of detail and accuracy needed.

- Practice under Exam Conditions: Simulate exam conditions to improve your ability to reach or surpass the required score thresholds.

- Identify Weak Areas: Use boundary data to identify topics where you need to improve, especially if your scores are close to the boundary.

- Set Realistic Goals: Based on current performance and boundary data, set achievable targets for each exam attempt.

- Stay Updated: Always check the latest grade boundaries published after your exam series to evaluate your performance accurately.

Interpreting Grade Boundaries: A Step-by-Step Guide

Step 1: Find the Boundary Scores

Locate the official grade boundary scores for your exam series, including the marks required for each grade.

Step 2: Match Your Raw Score

Compare your raw score (the number of marks obtained) to these boundaries.

Step 3: Determine Your Grade

- If your score is equal to or above the boundary for a particular grade, you can expect to receive that grade.
- If your score is just below a boundary, consider the margin and your potential to improve in future attempts.

Step 4: Plan Next Steps

- Above the Boundary: Celebrate your success and consider higher-grade aspirations.
- Below the Boundary: Identify areas for improvement and plan targeted revision strategies.

Future Outlook and Considerations

Continuous Standard-Setting

Pixl and other exam boards continually refine their standard-setting processes to ensure fairness and maintain standards. As assessments evolve, so too will the grade boundaries.

Impact of External Factors

Factors such as disruptions (e.g., exam cancellations or shifts to online assessments) can influence grade boundaries, sometimes leading to adjustments to account for differing exam conditions.

Preparing for Variability

Students should focus on mastering core concepts and practicing consistently, rather than relying solely on historical grade boundary data, as boundaries can shift based on exam difficulty and cohort performance.

Conclusion

The Pixl Maths papers grade boundaries are a vital component in understanding exam performance and setting realistic academic goals. While they fluctuate annually based on multiple factors, understanding how they are set and how to interpret them empowers students to approach their assessments with confidence. By staying informed through official sources, analyzing past boundaries, and practicing effectively, students can optimize their chances of achieving their desired

grades. Educators, in turn, can leverage this knowledge to tailor instruction and support, ensuring that learners are well-prepared to meet or exceed the standards set by Pixl. Ultimately, a thorough grasp of grade boundaries enhances transparency and fairness in the assessment process, fostering a more motivating and equitable environment for GCSE Maths candidates.

Question What are Pixl maths papers grade boundaries for 2023? Pixl maths papers grade boundaries for 2023 vary depending on the exam series and are typically released by the exam board shortly after results are published. It's best to check the official Pixl or exam board website for the most accurate and up-to-date grade boundaries. How do Pixl maths paper grade boundaries compare to other exam boards? Pixl grade boundaries are generally comparable to other exam boards like Edexcel or AQA, but slight variations can occur. It's important to refer to the official grade boundaries for each exam series for precise information. Where can I find official Pixl maths paper grade boundaries? Official Pixl maths paper grade boundaries are published on the Pixl website and the specific exam board's results portal shortly after the exams are marked and results are released. How are Pixl maths grade boundaries calculated? Grade boundaries for Pixl maths papers are determined by the exam board based on the distribution of marks, difficulty of the paper, and statistical analysis to ensure fair grading standards across different exam sessions. What is the typical grade boundary for a grade 5 in Pixl maths papers? While it varies each year, a grade 5 in Pixl maths papers often requires approximately 60-65% of the total marks, but students should consult the specific grade boundary for their exam series for exact figures. Can students estimate their grade based on Pixl maths paper grade boundaries? Students can estimate their likely grade by comparing their raw scores to the published grade boundaries, but only official results confirm the final grade. Are Pixl maths grade boundaries adjusted for different tiers (foundation or higher)? Yes, Pixl maths papers often have separate grade boundaries for foundation and higher tiers, reflecting the different levels of difficulty and mark schemes. How do I interpret Pixl maths paper grade boundaries after receiving my results? You can compare your raw score to the published grade boundaries to see what grade you have achieved. If your score is close to the boundary, it indicates a borderline grade, and you can review the official grade boundary chart for clarity. Are Pixl maths paper grade boundaries predictable for future exams? While historical data can provide some insight, grade boundaries can vary each year based on exam difficulty and statistical analysis, so they are not entirely predictable.

Related keywords: pixl maths papers, grade boundaries, PIXL exam scores, PIXL GCSE maths, PIXL grading criteria, PIXL assessment thresholds, PIXL exam results, GCSE maths grade boundaries, PIXL marking scheme, PIXL exam papers

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