

## Anchor Paper Scoring and Rationales- Task: Bus A or Bus B?

**Student: A**

| Criteria                               | Performance Level<br>(Advanced, Proficient,<br>Developing, Emerging) | Rationale   |
|--|--|---|
| <b>Mathematical Understanding</b>      | Proficient   | <ul style="list-style-type: none"> <li>The student demonstrates an understanding of elapsed time.</li> <li>The student applies the use of a t-chart which leads to a valid solution of Bus A's elapsed time (12 hrs and 27 min.).</li> </ul>  |
| <b>Problem Solving</b>                 | Proficient   | <ul style="list-style-type: none"> <li>The student displays an understanding of elapsed time by correctly determining Bus A as the shorter trip through the use of a t-chart.</li> <li>The student confirmed the reasonableness of their choice by subtracting the difference in minutes of both trips.</li> </ul>                      |
| <b>Communication and Reasoning</b>     | Advanced   | <ul style="list-style-type: none"> <li>The student made an estimation of Bus B's route which shows a more comprehensive understanding of the problem. The student communicated that Bus B is almost 13 hours and that 12 hours and 27 minutes is less time. The student writes that Bus A would get you there faster.</li> </ul>        |
| <b>Representations and Connections</b> | Proficient   | <ul style="list-style-type: none"> <li>The student uses a t-chart representation to explore the elapsed time. The t-chart is accurately labeled with hours, minutes, am and pm.</li> <li>The student could move to a score of Advanced by labeling and explaining what the subtracted difference of 26 meant in the problem.</li> </ul> |

## Anchor Paper Scoring and Rationales- Task: Bus A or Bus B?

**Student: B**

| Criteria                               | Performance Level<br>(Advanced, Proficient,<br>Developing, Emerging) | Rationale  |
|--|--|--|
| <b>Mathematical Understanding</b>      | Advanced   | <ul style="list-style-type: none"> <li>The student used the 12-hour relationship of am and pm to determine the elapsed time of Bus A demonstrating a deeper understanding. The student also found the exact difference between trips.</li> </ul>   |
| <b>Problem Solving</b>                 | Advanced   | <ul style="list-style-type: none"> <li>The student's t-chart strategy was well efficient. The student captured a greater chunk of time by using the 12-hour relationship of am to pm.</li> </ul>   |
| <b>Communication and Reasoning</b>     | Advanced   | <ul style="list-style-type: none"> <li>The student demonstrated and justified their reasoning for choosing Bus A by finding the 26-minute difference in elapsed time between the two buses.</li> <li>The student consistently used precise mathematical language (hours, minutes, shorter, longer) to communicate their thinking.</li> </ul> |
| <b>Representations and Connections</b> | Proficient   | <ul style="list-style-type: none"> <li>The student used a t-chart with accurate labels as a representation of the problem.</li> <li>The student could move to a score of Advanced by recording a mathematical connection between the t-chart and their solution.</li> </ul>  |

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**Student: C**

| Criteria                               | Performance Level<br>(Advanced, Proficient,<br>Developing, Emerging) | Rationale  |
|--|--|--|
| <b>Mathematical Understanding</b>      | Emerging   | <ul style="list-style-type: none"> <li>The student demonstrated no understanding of elapsed time. The student added the start and end times. The student did not denote am or pm. The student chose Bus A but gave no reason.</li> </ul>                                   |
| <b>Problem Solving</b>                 | Emerging   | <ul style="list-style-type: none"> <li>The student's strategy of adding the end and start time together did not produce a solution that is relevant to the problem.</li> </ul>   |
| <b>Communication and Reasoning</b>     | Emerging   | <ul style="list-style-type: none"> <li>The student chose Bus A but did not provide reasoning.</li> <li>The student does not provide evidence to support their choice.</li> <li>The student did not use any mathematical language to communicate their thinking.</li> </ul> |
| <b>Representations and Connections</b> | Emerging   | <ul style="list-style-type: none"> <li>The student used a representation of adding the end and start time of Bus A but it does not model the elapsed time situation.</li> <li>The student makes no mathematical connections.</li> </ul>                                    |

## Anchor Paper Scoring and Rationales- Task: Bus A or Bus B?

**Student: D**

| Criteria                               | Performance Level<br>(Advanced, Proficient,<br>Developing, Emerging) | Rationale  |
|--|--|--|
| <b>Mathematical Understanding</b>      | Proficient   | <ul style="list-style-type: none"> <li>The student demonstrated an understanding of elapsed time by creating a number line showing the elapsed time of Bus A.</li> <li>The student applied a number line strategy to support their choice of Bus A. Their strategy led to a valid and correct solution of the elapsed time.</li> </ul> |
| <b>Problem Solving</b>                 | Advanced   | <ul style="list-style-type: none"> <li>The student's use of a number line is efficient and displays a well-developed understanding of the elapsed time situation.</li> <li>The student produced a correct solution that is relevant to the problem by finding the exact difference between the two bus routes.</li> </ul>              |
| <b>Communication and Reasoning</b>     | Advanced   | <ul style="list-style-type: none"> <li>The student supported their choice with reasoning and consistently used precise mathematical language (hours, minutes, difference, time) to communicate their thinking.</li> </ul>  |
| <b>Representations and Connections</b> | Advanced   | <ul style="list-style-type: none"> <li>The student used a number line with a key denoting 1 hour, 10 minutes, and 1 minute increments to represent their thinking. The student used an equation to represent the difference in time between the two buses.</li> </ul>  |

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**Student: E**

| Criteria                               | Performance Level<br>(Advanced, Proficient,<br>Developing, Emerging) | Rationale   |
|--|--|---|
| <b>Mathematical Understanding</b>      | Proficient   | <ul style="list-style-type: none"> <li>• The student demonstrated an understanding of the elapsed time task by correctly determining the elapsed time of Bus A.</li> <li>• The student applied a counting up strategy of hours and minutes which led to a valid and correct solution.</li> </ul>  |
| <b>Problem Solving</b>                 | Proficient   | <ul style="list-style-type: none"> <li>• The student used a counting up strategy to display an understanding of elapsed time.</li> <li>• The student produced a relevant solution of Bus A's elapsed time and explained that Bus B is longer.</li> </ul>  |
| <b>Communication and Reasoning</b>     | Developing   | <ul style="list-style-type: none"> <li>• The student's reasoning is limited to communicating that Bus B's trip is longer without explanation of how. The student communicates counting in minutes but actually counted in hours.</li> <li>• The student used limited mathematical language (minutes, hours, longer) to communicate their thinking.</li> </ul> |
| <b>Representations and Connections</b> | Developing   | <ul style="list-style-type: none"> <li>• The student partially modeled elapsed time with a list of elapsed hours and minutes.</li> <li>• The student could move to a score of Proficient by labeling both the hours and minutes used to determine the elapsed time.</li> </ul>  |

## Anchor Paper Scoring and Rationales- Task: Bus A or Bus B?

**Student: F**

| Criteria                               | Performance Level<br>(Advanced, Proficient,<br>Developing, Emerging) | Rationale  |
|--|--|--|
| <b>Mathematical Understanding</b>      | Proficient   | <ul style="list-style-type: none"> <li>The student demonstrated an understanding of elapsed time by creating a number line to represent the elapsed time situation.</li> <li>The student applied the result of their number line to make a choice of Bus B. Their number line strategy led to a valid solution.</li> </ul>   |
| <b>Problem Solving</b>                 | Advanced   | <ul style="list-style-type: none"> <li>The student used the number line to efficiently solve the problem by making jumps of greater quantities.</li> <li>The student confirmed the reasonableness of the solution by determining the exact difference in route times.</li> </ul>   |
| <b>Communication and Reasoning</b>     | Advanced   | <ul style="list-style-type: none"> <li>The student's reasoning was comprehensive. The student reasoned that Bus B was the better choice because it would take 26 more minutes and the student liked long bus rides.</li> <li>The student used consistent and precise mathematical language (am, pm, minutes, difference) to communicate their thinking.</li> </ul> |
| <b>Representations and Connections</b> | Proficient   | <ul style="list-style-type: none"> <li>The student represented the problem with a number line. The number line is labeled accurately with times in am and pm. The increments were clearly marked and the total time was recorded.</li> </ul>   |