

MeTEOR Performance Task

Sixth Grade

Mathematics
The Lemonade Stand

Performance Task Item: The Lemonade Stand

Grade Level: 6th Grade

Focus Area: Integers

Essential Question: With the use of a number line, can money exchanges be used to represent quantities in a real world context?

Core Ideas:

- Understands that integers can be positioned on a number line.
- Understands that quantities have opposite directions on a number line.
- Understands that positive and negative numbers represent quantities in a real world context.

Learning Targets:

- Students will plot rational numbers on a number line.
- Students will describe quantities as positive or negative by using direction.
- Students will explain the meaning of 0 in a real world situation.

STANDARDS

Domain: Number System

Content Standards:

- Understand a rational number as a point on the number line.
- Find and position integers and other rational numbers on a horizontal or vertical number line diagrams.
- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge).
- Use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

Math Practice Standards:

MP 2: Reason abstractly and quantitatively.

MP 3: Construct viable arguments and critique the reasoning of others.

MP 4: Model with mathematics.

MP 5: Use appropriate tools strategically.

MP 6: Attend to precision.

Materials:

- Performance Task
- Pencil
- Paper
- Number line

Task/Question 1:

DOK Level 1: Recall & Reproduction

Math Practice Standard:

- MP 6: Attend to precision.

A. What is the opposite of -3?

B. Jesse believes the opposite of 4 is -4. Do you agree with him? Explain your understanding.

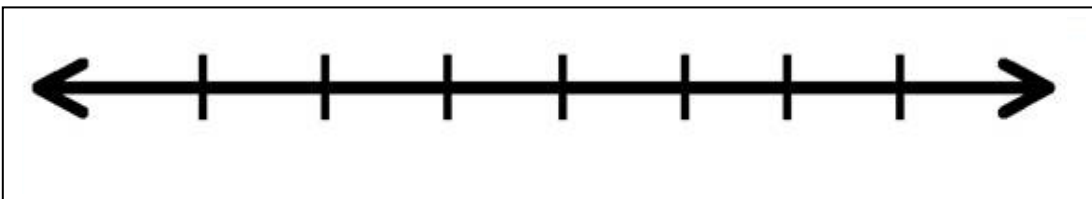
Task/Question 2:

DOK Level 2: Basic Application of Skills and Concepts

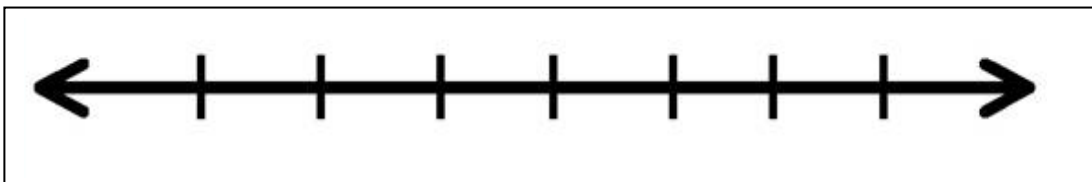
Math Practice Standards:

- MP 1: Make sense of problems and persevere in solving them.
- MP 6: Attend to precision.

A. Plot 2 and its opposite on the number line below:



B. Point C is 1 unit from 0. Plot Point C and $-(C)$ on the number line below:



Task/Question 3:

DOK Level 2: Basic Application of Skills and Concepts

Math Practice Standards:

- MP 1: Make sense of problems and persevere in solving them.
- MP 3: Construct viable arguments and critique the reasoning of others.
- MP 7: Look for and make use of structure.

A. Put an X next to the integer represented by the description:

	\$ 5 credit	Surface of the water	5 feet below the surface
-5			
5			
0			

B. Use an integer to describe the following situations:

Situation	Integer
The base of the mountain	
25 feet above sea level	
A deduction of 42 dollars	
The plane descended 1400 feet	
The total amount didn't change	
A gain of 29 yards	

Task/Question 4:

DOK Level 3: Strategic Thinking and Complex Reasoning

Math Practice Standards:

- MP 1: Make sense of problems and persevere in solving them.
- MP 3: Construct viable arguments and critique the reasoning of others.
- MP 4: Model with mathematics.
- MP 7: Look for and make use of structure.

Lemonade Business

During spring break, Sammy and Jayson ran a lemonade business. The following table demonstrates the amount of funds that were transferred each day.

Day	Money
Monday	Earned 5 dollars
Tuesday	Lost 11 dollars
Wednesday	Earned 4 dollars
Thursday	Lost 5 dollars
Friday	Earned 9 dollars
Saturday	Earned 10 dollars


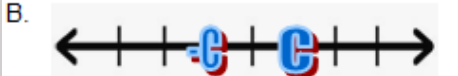
A. Assuming that each day the students began with the same amount of money, create a number line and plot money earned/lost on each day. (You should have 6 days plotted).

B. What does the 0 on your number line represent? Defend your answer.

- C.** On which day was the most money exchanged? Defend your answer.
- D.** List the opposites that were plotted. Do “opposite days” impact the money earned? Defend your answer.
- E.** If you were running the business on which two days would you make more lemonade due to successful business?

Complete Performance Task Scoring Rubric The Lemonade Stand

24-28 Proficient 19-23 Good 15-18 Satisfactory 11-14 Poor 0-10 Unsatisfactory

	Depth of Knowledge Level	Points	Total Possible Points for Task	Total Points Earned by Student																												
Task 1: A. 3 B. Yes, because they are both the same difference from zero.	1	1 1	2																													
Task 2: A.  B. 	2	2 2	4																													
Task 3: A. <table border="1" data-bbox="212 1289 630 1535"> <tr> <td></td> <td>\$ 5 credit</td> <td>Surface of the water</td> <td>5 feet below the surface</td> </tr> <tr> <td>-5</td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>5</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>0</td> <td></td> <td>X</td> <td></td> </tr> </table> B. <table border="1" data-bbox="212 1591 644 1856"> <tr> <td>The base of the mountain</td> <td>0</td> </tr> <tr> <td>25 feet above sea level</td> <td>25</td> </tr> <tr> <td>A deduction of 42 dollars</td> <td>-42</td> </tr> <tr> <td>The plane descended 1400 feet</td> <td>-1400</td> </tr> <tr> <td>The total amount didn't change</td> <td>0</td> </tr> <tr> <td>A gain of 29 yards</td> <td>29</td> </tr> </table>		\$ 5 credit	Surface of the water	5 feet below the surface	-5			X	5	X			0		X		The base of the mountain	0	25 feet above sea level	25	A deduction of 42 dollars	-42	The plane descended 1400 feet	-1400	The total amount didn't change	0	A gain of 29 yards	29	3	3 6	9	
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Task 4:	3		13															
A. <table border="1"><thead><tr><th>Day</th><th>Plotted</th></tr></thead><tbody><tr><td>Monday</td><td>5</td></tr><tr><td>Tuesday</td><td>-11</td></tr><tr><td>Wednesday</td><td>4</td></tr><tr><td>Thursday</td><td>-4</td></tr><tr><td>Friday</td><td>9</td></tr><tr><td>Saturday</td><td>10</td></tr></tbody></table>	Day	Plotted	Monday	5	Tuesday	-11	Wednesday	4	Thursday	-4	Friday	9	Saturday	10		6		
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Monday	5																	
Tuesday	-11																	
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B. The amount of money the students began each day with.		2																
C. Tuesday. 11 dollars exchanged hands. (highest absolute value)		2																
D. 4 and -4 are the opposites plotted. When 4 and -4 are added, the answer is zero; therefore, they do not impact the overall amount of money exchanging hands.		2																
E. Friday and Saturday had the highest positive values, so make more lemonade on those two days.		1																
TOTAL POINTS:																		



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