

Name: _____

Date: _____

Two students determined the value of this expression.

$$-2.5(1.4 + 3.1) + 6.9(-4.3)$$

These are the steps each student used.

Student P	Student Q
Step 1: $-3.5 + 7.75 + 6.9(-4.3)$	Step 1: $-3.5 - 7.75 + 6.9(-4.3)$
Step 2: $-3.5 + 7.75 - 29.67$	Step 2: $-3.5 - 7.75 - 29.67$
Step 3: $7.75 - 3.5 - 29.67$	Step 3: $-(3.5 - 7.75 - 29.67)$
Step 4: -25.42	Step 4: $-(-33.92)$
	Step 5: 33.92

- Describe any errors made by Student P.
- Describe any errors made by Student Q.
- Show a complete set of correct steps to determine the value of the expression.



Enter your answer and explanation in the space provided.

ANSWER KEY

Rubric	
Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a correct description of the error made by Student P in step 1. • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a correct description of the error made by Student Q in step 3. • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a correct set of steps shown to determine the value of the expression, -40.92. <p>Sample Student Response:</p> <p>Student P made one error, which occurred in step 1. From the original expression to step 1, each term in the first set of parentheses is multiplied by -2.5. The error in step 1 is that $-2.5 \times 3.1 = -7.75$ not 7.75. There are no additional errors in Student P’s steps.</p> <p>Student Q made one error, which occurred in step 3. Since all terms in step 2 are negative or are being subtracted, -1 can be factored from each term. This would leave only positive terms inside the parentheses. That is, the student should have indicated that $-3.5 - 7.75 - 29.67 = -(3.5 + 7.75 + 29.67)$. There are no additional errors in Student Q’s steps.</p> <p>A correct set of steps to determine the value of the expression is shown.</p> $-2.5(1.4 + 3.1) + 6.9(-4.3)$ $-3.5 + (-7.75 + (-29.67))$ $-3.5 - 7.75 - 29.67 = -40.92$ <p>or</p> $-2.5(1.4 + 3.1) + 6.9(-4.3)$ $-2.5(4.5) + (-29.67)$ $-11.25 + (-29.67) = -40.92$ <p>or other valid response</p>
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

Glow	Grow