

## Argumentation Prompt #1

### Comparing Numbers

1. How do you know if one number is larger than another number when you are asked to compare 2 integers?

Student: "I always remember that if it's a negative and a positive, the negative will always be the larger one. So if it's a negative 1 and a negative 9, the negative 9 would be larger than the negative 1 because the negative 9 is the biggest."

## Argumentation Prompt #2

### Adding Integers

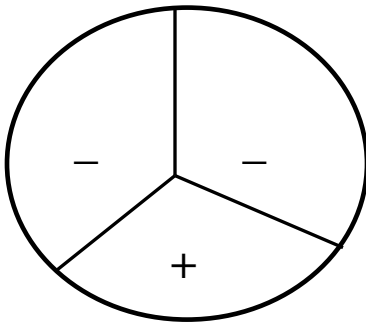
1.  $(-5) + 8 = ?$

Student:  $5 + 8$  is 13, so it would be negative, no just positive 13. I think it is positive because that's the biggest number.

2.  $(-3) + (-6) = ?$

Student: I was thinking about the negative sign. I could be wrong. I think it is positive 9, because a negative times a negative makes a, NO, a negative times a negative makes a negative, and a negative and a positive makes a positive number. I just know that it's 9, positive, because two negatives equal a positive.

Student Drew Pie Man shown below:



## Argumentation Prompt #3

### Subtracting Integers

1.  $2 - 7 = ?$

Student: When I was in kindergarten, I didn't think you could do this problem. Now I know this is the same thing as  $7 - 2$ , so the answer is 5.

2.  $(-3) - 5 = ?$

Student:  $(-3 - 5)$  is  $-2$ , because you just subtract.

Another Student: You can draw 3 boxes or 3 circles and you can tell you are trying to get to 5. You are missing 2. So the answer is 2.

## Argumentation Prompt #4

### Multiplication of Integers

1.  $(-4) \times 5 = ?$

Student: It is 20, a negative. No it's a positive, because the negative is in front of the 4, which is smaller and the 5 is positive and it is larger. So it is positive 20.

Another Student: I just multiply that times that and get 20, and since the higher number is positive, it's going to be positive.

*Note: Argumentation prompts written by Sarah Brasiel*

## Positive and Negative Numbers- Teacher Assessment

1. Given  $5 - (-8) = ?$  How would you explain to a student the solution?
2. Given  $-5 \times (-8) = ?$  Why does the answer have the sign that it does?
3. A student teacher reads  $(-6) + (+7)$  as "minus six and plus seven" and  $6 - (+7)$  as "six minus plus seven". Is this appropriate? Explain why or why not.
4. A student when given the problem " $4 - 7 = ?$ " responds "3." What is a possible misconception that they might have that causes them to have this response? How would you respond to them?
5. Is  $3 - 5$  the same as  $3 + (-5)$ ? Why or why not? Explain.
6. Have you ever supported your students in arguing about math? Describe the experience, any benefits, and any challenges below:
7. List as many examples for applications for integer operations that you can think of. These can be real world examples or examples in other domains, i.e., physics, chemistry, animation, forensics, etc. Be as specific as possible of your understanding of the use of integers and integer operations within each real world example or domain application.

*Note: Teacher assessment designed by Sarah Brasiel*