

## STUDENT MATERIALS

### TASK 1 – WHO KNOWS THE ORDER

Alexander, Bianca and Chancey each were given the expression  $16 - 2 \div 2 + 5$ . Each student ended up with something different. Their work and steps are shown below:

Alexander	Bianca	Chauncey
$16 - 2 \div 2 + 5$	$16 - 2 \div 2 + 5$	$16 - 2 \div 2 + 5$
$14 \div 2 + 5$	$14 \div 7$	$16 - 1 + 5$
$7 + 5$	2	$15 + 5$
12		20

Choose the student who performed order of operations correctly and arrived at the correct equivalent expression and check the ☐ next to "There are no errors" in their feedback below.

For the other two students, explain the error or errors they made in their work .

Feedback for Alexander	Feedback for Bianca	Feedback for Chauncey
<input type="checkbox"/> There are no errors.  Explain any errors:  $2 \div 2 = 1$ and he did not divide	<input type="checkbox"/> There are no errors.  Explain any errors:  $16 - 2$ is 14 but she did not divide 2 by 2.	<input checked="" type="checkbox"/> There are no errors.  Explain any errors:  I think chauncey did it right.

## TASK 2 – GROUP IT!

1. Damond noticed that the two students who did not use order of operations correctly could add grouping symbols so the equations below are true.

Add parentheses to the equations, if necessary, to make them true. Remember that one of the equations is already correct and does not need parentheses because it is already true.

**Alexander's Equation:**  $16 - 2 \div 2 + 5 = 12$  ✓

$14 \div 2 = 7 + 5 = 12$

**Bianca's Equation:**  $16 - 2 \div 2 + 5 = 2$

**Chauncey's Equation:**  $(16 - 2) \div (2 + 5) = 20$

2. Create your own problem using parentheses and at least two operations that could be confusing to figure out or simplify if you didn't know how to use order of operations correctly. Show how to simplify the expression correctly. Then show how someone may incorrectly simplify the expression if they didn't understand order of operations.

Your own problem:

$12 - 4 \div 2 + 6 = 10$

How to simplify the expression CORRECTLY.

$16 - 2 \div 2 + 5 = 12$   
 $14 \div 2 = 7 + 5$

How someone who doesn't understand order of operations may simplify the expression.

$14 \div 2 + 5 = 12$

**Based on the work you saw today and the feedback you provided, why might it be important to have rules like the order of operations?**

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be from a notebook or a set of legal pads. The edges of the paper are slightly irregular, suggesting it might be a scan of a physical document. There is no handwriting or other markings on the page.