Order of Operations with Integers

PRIORITY WITH OPERATIONS: PEMDAS

( ) E^2 X ÷ + –

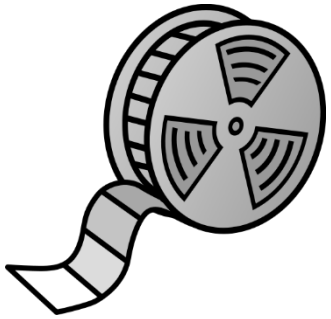
You **do not** need to re-copy the outcome. We are now focusing on the final achievement indicator.

N7: Demonstrate an understanding of multiplication and division of integers, concretely, pictorially and symbolically.

ACHIEVEMENT INDICATORS:

- Identify the operation required to solve a given problem involving integers.
- Provide a context that requires multiplying two integers.
- Provide a context that requires dividing two integers.
- Model the process of multiplying two integers using concrete materials or pictorial representations and record the process.
- Model the process of dividing an integer by an integer using concrete materials or pictorial representations and record the process.
- Solve a given problem involving the division of integers (2-digit by 1-digit) without the use of technology.
- Solve a given problem involving the division of integers (2-digit by 2-digit) with the use of technology.
- Generalize and apply a rule for determining the sign of the product and quotient of integers.
- **Solve a given problem involving integers taking into consideration order of operations.**

Video



The song …

https://www.youtube.com/watch?v=ZzeDWFhYv3E

https://www.youtube.com/watch?v=V3u12jk2t6k

Second video is long but helpful.

If you are asked to simplify this: “4 + 2 × 3”

the question that naturally arises is

"Which way do I do this?

“Because there could be two options!”

I could add first: $4 + 2 \times 3$

6×3

$= 18$

...or I could multiply first: $4 + 2 \times 3$

$4 + 6$

$= 10$

6

Which answer is the right one?

-- A common technique for remembering the order of operations is the "acronym“ PEMDAS

"Please Excuse My Dear Aunt Sally".

1-Parentheses (simplify inside them)
2- Exponents
3-Multiplication and/or Division (from left to right)
4- Addition and/or Subtraction (from left to right)

***Note**: We do not use exponents (4^2) with order of operations in Grade 8.

Order of operations with Integers

Read page 91.

Copy the 3 examples in your math scribbler.

Copy the following expressions and **underline** which part you must do first.

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a) $8 + 5 \times 2$

b) $10 \div 2 + 3$

c) $15 - 6 \div 3 + 3$

d) $5 \times 3 + 5$

e) $3 \times (2 + 5) \div 7$

f) $4 - (4 + 6)$

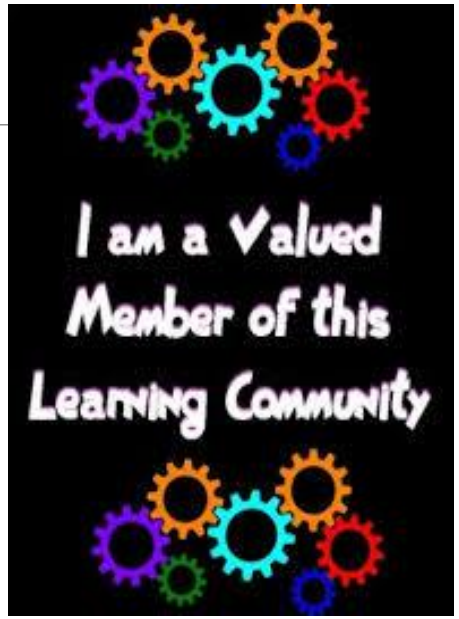
Once done copying and underlining the part you must do first, please see your teacher to get it checked. NOTE: do not solve this until it is checked. When it has been checked, proceed to solving these equations following PEMDAS. You must show all the steps used to find the answer.

Continue …

g) $8 + 32 \div 4$

h) $16 - 36 \div 6 + 4$

i) $7 + 3 + 5 \times 3$



j) $(-24) \div (-4 + 6)$

k) $(-2)(5) + (3)(-4)$

l) $[\,7 + (-4)\,] \times 10$

m) $3 \times 9 + [(-6) + 3]$

n) $\dfrac{3 + (6 \times 5) - 9}{8}$

Practice

1. **Complete** the following questions on page 92 # 3, 4, 7, 8, 9 & 10 .

*When completed, please correct using the answers available at the end of the book.

Make all necessary corrections to make it right.

2. **Worksheet 2.5** – Order of Operations with Integers (pages 39 and 40 from the Practice and Homework Book)

Demonstrate your Understanding:

Look at the order of operations.
Robert, Brenna, and Christian got different answers for this problem:

$$(-40) - 2\,[(-8) \div 2]$$

Here is their work:

Robert	**Brenna**	**Christian**
(–40) – 2[(–8) ÷ 2] **= (–40) – 2(–4)** **= (–40) – (–8)** **= –32**	**(–40) – 2[(–8) ÷ 2]** **= (–40) – 2(–4)** **= (–42)(–4)** **= 168**	**(–40) – 2[(–8) ÷ 2]** **= (–40) – 2(–4)** **= (–40) – 8** **= –48**

1. **Which** person has the correct answer?
2. Explain the others person`s mistakes.
***Answer** in complete sentences.

Journal Question N7 # 4