

ORDER OF OPERATIONS BOOT CAMP

Standard FOCUS: Number, Number Sense and Operations

Time Range: 3-5 Days

Supplies: Calculator

Topics of Focus:

- **Order of operations**
- Word Problems



Benchmarks:

6.EE.A.2c

Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.

Procedures:

A. To start, give the Pre-Assessment to students. The rows of problems correspond to the Levels. The first row is Level 1, the second row is Level 2 and so on ending with the sixth row Level 6.

If students miss questions on a level, that is where to have them start. If they finish the entire thing without making a mistake they will start on Level 7.

We like to use stickers or stamps to sign off on their mastery of a level. Regardless the age of students, they like this too.

In my experience, it works well to have students on similar levels work through problems together.

B. Once they complete a Practice assignment, they can take the Mastery Test. There are two versions of each test provided. If they pass the mastery test (you set the threshold – I like to use 90%) then they can move onto the next level. If they do not then they can repeat that Practice Assignment.

I like to let students take a Practice Assignment home so they can walk in and take a Mastery Test the next day.

C. Once a student completes all the levels, they become a teacher. A tutor for a student or a small group instructor generally works well.

The goal is that the students get differentiated practice on perhaps the most important math skill of all.



ORDER OF OPERATIONS

BOOT CAMP

NAME _____

| INSIGNIA | RANK | MASTERY <input checked="" type="checkbox"/> |
|-----------------|-----------------------|--|
| | PRIVATE | |
| | SPECIALIST | |
| | CORPORAL | |
| | SERGEANT | |
| | STAFF SERGEANT | |
| | LIEUTENANT | |
| | CAPTAIN | |
| | MAJOR | |
| | COLONEL | |
| | GENERAL | |



**BASIC TRAINING
PRE-ASSESSMENT**

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**ORDER OF OPERATIONS
BOOT CAMP
PLACEMENT TEST**

NAME:

1.) $(25 - 6) \times 2$

2.) $(21 - 5) \div 8$

3.) $\frac{32}{8} + 7$

4.) $4 + 3^2$

5.) $9 - \frac{14}{7}$

6.) $6 \times 3 - 8$

7.) $\frac{(5 + 7)}{3} + 9$

8.) $18 - \frac{6 + 2}{4}$

9.) $\frac{33 - 8}{5} - 4$

10.) $20 \div [4 - (10 - 8)]$

11.) $32 + 4 - (6 - 3)$

12.) $30 \div 3 - (9 - 5)$

13.) $(5 + 16) \div 7 + 8$

14.) $7 + 11 \times 4 - 12$

15.) $26 + (1 - 5) - (-4)^2$

16.) $6(1 + 6) + 7$

17.) $4(6 + 7) - 14$

18.) $3 + 5 \times 2(3 + 1)$

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**PRIVATE
PARENTHESIS
FIRST**

ORDER OF OPERATIONS BOOT CAMP LEVEL 1 PRACTICE

NAME:

1.) $(19 - 3) \div 2$

2.) $6 \times (5 + 2)$

3.) $36 \div (9 - 3)$

4.) $(52 - 4) \div 12$

5.) $13 + (18 - 4)$

6.) $4 + (26 - 15)$

7.) $4(11 + 6)$

8.) $(32 - 4) \div 7$

9.) $(5 + 2) \times 9$

10.) $45 \div (3 + 12)$

11.) $(39 - 3) \div 6$

12.) $14 \times (54 - 52)$

13.) What is the product of 7 and the difference of 15 and 9?

14.) What is the quotient of 56 and the sum of 3 and 5?

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**PRIVATE
PARENTHESIS
FIRST**

ORDER OF OPERATIONS BOOT CAMP LEVEL 1 MASTERY A

NAME:

1.) $16(17 - 14)$ 2.) $(34 + 5) \div 3$ 3.) $23 - (8 + 3)$

4.) $7 + (38 - 5)$ 5.) What is the product of 3 and the sum of 9 and 4?



**PRIVATE
PARENTHESIS
FIRST**

ORDER OF OPERATIONS BOOT CAMP LEVEL 1 MASTERY B

NAME:

1.) $17(23 - 19)$ 2.) $37 - (56 - 42)$ 3.) $(75 - 40) \div 7$

4.) $99 \div (37 - 26)$ 5.) What is the product of 9 and the difference of 14 and 8?

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**SPECIALIST
EXPONENTS
FIRST**

ORDER OF OPERATIONS BOOT CAMP LEVEL 2 PRACTICE

NAME:

1.) $4^2 - 5$

2.) $7^2 + 3$

3.) $9^2 - 24$

4.) $12 + 7^2$

5.) $39 - 5^2$

6.) $8^2 - 17$

7.) $11^2 + 6$

8.) $14^2 - 73$

9.) $6^2 + 59$

10.) What is the sum of 8 squared and 25?

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SPECIALIST
EXONENTS
FIRST

ORDER OF OPERATIONS BOOT CAMP

LEVEL 2 MASTERY A

NAME:

1.) $53 - 6^2$

2.) $9^2 - 32$

3.) $8^2 + 17$

4.) $12^2 - 35$

5.) What is the sum of 23 and 7 squared?



SPECIALIST
EXONENTS
FIRST

ORDER OF OPERATIONS BOOT CAMP

LEVEL 2 MASTERY B

NAME:

1.) $13^2 - 76$

2.) $88 - 4^2$

3.) $15^2 - 74$

4.) $156 - 8^2$

5.) What is the difference between 98 and 7 squared?

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CORPORAL
MULTI-STEP

ORDER OF OPERATIONS
BOOT CAMP
LEVEL 3 PRACTICE

NAME:

1.) $\frac{68}{4} + 21$

2.) $\frac{35}{7} + 28$

3.) $82 - \frac{75}{5}$

4.) $79 - \frac{51}{3}$

5.) $\frac{81}{3} - 7$

6.) $36 + \frac{65}{5}$

7.) $\frac{56}{4} + 28$

8.) $29 + \frac{36}{4}$

9.) $\frac{39}{3} + 41$

10.) What is 17 less than the quotient of 99 and 3?

11.) What is 26 more than the product of 17 and 2?

12.) What is the difference between 76 and the product of 3 and 8?

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CORPORAL
MULTI-STEP

ORDER OF OPERATIONS
BOOT CAMP
LEVEL 3 MASTERY A

NAME:

1.) $19 + \frac{54}{6}$

2.) $\frac{32}{4} + 56$

3.) $49 - \frac{36}{9}$

4.) $\frac{84}{4} - 9$

5.) What is the sum of 31 and the quotient of 45 and 3?



CORPORAL
MULTI-STEP

ORDER OF OPERATIONS
BOOT CAMP
LEVEL 3 MASTERY B

NAME:

1.) $\frac{48}{4} + 51$

2.) $83 - \frac{72}{9}$

3.) $\frac{96}{2} - 21$

4.) $98 - \frac{96}{6}$

5.) What is the sum of 26 and the quotient of 93 and 3?

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**SERGEANT
EXPONENTS
THEN MULTIPLY
OR DIVIDE**

ORDER OF OPERATIONS BOOT CAMP LEVEL 4 PRACTICE

NAME:

1.) 4×7^2

2.) $8^2 \div 4$

3.) 3×9^2

4.) $9^2 \div 3$

5.) 3×7^2

6.) $12^2 \times 2$

7.) $128 \div 8^2$

8.) $14^2 \div 4$

9.) $225 \div 5^2$

10.) $14^2 \div 7$

11.) 4×3^3

12.) $128 \div 2^3$

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SERGEANT
EXONENTS
THEN MULTIPLY
OR DIVIDE

ORDER OF OPERATIONS BOOT CAMP LEVEL 4 MASTERY A

NAME:

1.) $128 \div 4^2$

2.) $16^2 \div 8$

3.) $13^2 \times 2$

4.) $12^2 \div 6$

5.) 7×5^2

6.) 6×4^2



SERGEANT
EXONENTS
THEN MULTIPLY
OR DIVIDE

ORDER OF OPERATIONS BOOT CAMP LEVEL 4 MASTERY B

NAME:

1.) $325 \div 5^2$

2.) $12^2 \times 3$

3.) $18^2 \div 9$

4.) 9×3^3

5.) $12^2 \div 9$

6.) 7×4^2

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**STAFF
SERGEANT**
PARENTHESIS,
EXPONENTS,
MULTIPLY OR
DIVIDE

ORDER OF OPERATIONS BOOT CAMP

LEVEL 5 PRACTICE

NAME:

1.) $3(13 - 5)^2$

2.) $\frac{(3 + 5)^2}{4}$

3.) $2(11 + 5)^2$

4.) $\frac{(17 - 5)^2}{9}$

5.) $4(15 - 7)^2$

6.) $\frac{(4 + 8)^2}{6}$

7.) $7(17 - 9)^2$

8.) $\frac{(23 - 9)^2}{7}$

9.) $6(9 - 5)^3$

10.) What is the product of 8 and the square of the sum of 2 and 3?

11.) What is the quotient of the square of the difference of 18 and 6 and 9?



**STAFF
SERGEANT**
PARENTHESIS,
EXPONENTS,
MULTIPLY OR
DIVIDE

ORDER OF OPERATIONS BOOT CAMP LEVEL 5 MASTERY A

NAME:

1.) $3(18 - 9)^2$

2.) $\frac{(37 - 19)^2}{9}$

3.) $6(28 - 19)^2$

4.) $\frac{(43 - 39)^3}{2}$

5.) What is the product of 3 and the square of the sum of 4 and 7?



**STAFF
SERGEANT**
PARENTHESIS,
EXPONENTS,
MULTIPLY OR
DIVIDE

ORDER OF OPERATIONS BOOT CAMP LEVEL 5 MASTERY B

NAME:

1.) $\frac{(23 - 8)^2}{5}$

2.) $6(19 - 11)^2$

3.) $\frac{(28 - 13)^2}{3}$

4.) $2(17 - 13)^3$

5.) What is the product of 4 and the square of the sum of 6 and 3?

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LIEUTENANT
PARENTHESIS,
EXPONENTS, ADD
OR SUBTRACT

ORDER OF OPERATIONS BOOT CAMP

LEVEL 6 PRACTICE

NAME:

1.) $(8 - 3)^2 + 9$

2.) $12 + (8 - 3)^2$

3.) $(4 + 3)^2 + 16$

4.) $27 + (7 - 2)^2$

5.) $(9 + 5)^2 - 78$

6.) $85 - (5 + 3)^2$

7.) $(7 + 1)^2 - 19$

8.) $28 + (9 - 3)^2$

9.) $(13 - 8)^2 + 11$

10.) $53 + (9 - 2)^2$

11.) $(6 + 3)^2 + 19$

12.) $76 - (9 - 2)^2$

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LIEUTENANT
PARENTHESIS,
EXPONENTS, ADD
OR SUBTRACT

**ORDER OF OPERATIONS
BOOT CAMP
LEVEL 6 MASTERY A**

NAME:

1.) $23 + (7 - 2)^2$

2.) $(3 + 3)^2 + 39$

3.) $92 - (9 - 4)^2$

4.) $(5 - 1)^2 + 57$

5.) $18 + (9 - 1)^2$

6.) $(23 - 15)^2 + 27$



LIEUTENANT
PARENTHESIS,
EXPONENTS, ADD
OR SUBTRACT

**ORDER OF OPERATIONS
BOOT CAMP
LEVEL 6 MASTERY B**

NAME:

1.) $(9 - 4)^2 + 59$

2.) $28 + (8 - 2)^2$

3.) $(8 + 3)^2 - 26$

4.) $99 - (8 - 3)^2$

5.) $(7 - 5)^2 + 89$

6.) $82 - (8 - 2)^2$

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**CAPTAIN
NESTED
PARENTHESIS**

ORDER OF OPERATIONS BOOT CAMP LEVEL 7 PRACTICE

NAME:

- 1.) $23 + [5 + (28 - 12)]$ 2.) $[(6 - 2) + 13] + 31$ 3.) $45 + [37 - (8 + 11)]$
- 4.) $[(6 + 15) - 13] + 31$ 5.) $38 + [85 - (28 + 32)]$ 6.) $38 - [(8 + 2) - 4]$
- 7.) $63 + [55 - (38 - 22)]$ 8.) $[(18 + 32) - 13] + 51$ 9.) $36 + [94 - (38 + 21)]$
- 10.) $88 - [(23 + 17) - 14]$ 11.) $33 + [65 + (29 - 13)]$ 12.) $[(19 - 8) + 43] + 36$
- 13.) $29 + [33 + (68 - 22)]$ 14.) $78 - [(18 + 72) - 64]$ 15.) $15 + [37 + (88 - 52)]$
- 16.) $79 - [(18 + 42) - 14]$ 17.) $18 + [35 + (48 - 34)]$ 18.) $[(36 - 12) + 43] + 27$

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**CAPTAIN
NESTED
PARENTHESIS**

**ORDER OF OPERATIONS
BOOT CAMP
LEVEL 7 MASTERY A**

NAME:

1.) $97 - [(18 + 21) - 23]$ 2.) $33 + [25 + (48 - 12)]$ 3.) $[(36 - 23) + 63] + 32$

4.) $[62 - (12 + 23)] + 58$ 5.) $83 - [(28 + 33) - 24]$ 6.) $32 + [21 + (88 - 62)]$



**CAPTAIN
NESTED
PARENTHESIS**

**ORDER OF OPERATIONS
BOOT CAMP
LEVEL 7 MASTERY B**

NAME:

1.) $32 + [53 + (48 - 21)]$ 2.) $68 - [(18 + 21) - 13]$ 3.) $[66 - (32 + 13)] + 35$

4.) $98 - [(81 + 12) - 67]$ 5.) $[(52 - 27) + 53] + 13$ 6.) $[76 - (2 + 43)] + 65$

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**MAJOR
ADVANCED**

**ORDER OF OPERATIONS
BOOT CAMP
LEVEL 8 PRACTICE**

NAME:

1.) $5[16 + 2(2 + 1)]$ 2.) $[19 - 2(2 + 3)] \times 3$ 3.) $[39 + 2(5 + 7)] \div 3$

4.) $[43 - 4(3 + 6)] \times 4$ 5.) $7[53 - 3(9 + 5)]$ 6.) $2[86 - 5(2 + 6)]$

7.) $3[89 - 7(5 + 3)]$ 8.) $[46 - 3(8 - 5)] \times 4$ 9.) $[56 + 2(3 + 2)] \div 3$

10.) What is 4 times the difference of 57 and twice the sum of 5 and 4?

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**MAJOR
ADVANCED**

ORDER OF OPERATIONS BOOT CAMP LEVEL 8 MASTERY A

NAME:

1.) $3[67 - 6(5 + 1)]$

2.) $[36 + 2(2 + 4)] \times 3$

3.) $[35 + 4(5 + 8)] \div 3$

4.) What is 2 times the difference of 73 and twice the sum of 9 and 4?



**MAJOR
ADVANCED**

ORDER OF OPERATIONS BOOT CAMP LEVEL 8 MASTERY B

NAME:

1.) $[96 - 5(4 + 2)] \div 3$

2.) $7[49 - 2(7 + 3)]$

3.) $[18 + 2(8 - 5)] \times 3$

4.) What is 2 times the sum of 33 and twice the sum of 3 and 5?

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ORDER OF OPERATIONS BOOT CAMP

LEVEL 9 PRACTICE

NAME: _____

- 1.) Suppose the formula for calculating the cost per one thousand kilowatt hours of electricity is twice the sum of thirty-six and four times the difference of seven and two dollars per thousand kilowatt hours. How many cents does one hundred kilowatt hour cost?

- 2.) Suppose the formula for calculating the number of chances out of one hundred thousand in a lottery is three times the difference of twenty-eight and four times the difference of six and two chances per one hundred thousand. How many chances out of one hundred thousand are there to win?

- 3.) Suppose the formula for calculating the number of games a baseball team is projected to win during the next season is four times the difference of thirty-nine and five times the difference of eighteen and thirteen games. How many games is the team projected to win?

- 4.) James has a job mowing lawns during the summer. Suppose the formula for calculating the number of hours he will have to work each week is five times the difference of thirty-eight and three times the difference of fifteen and four hours. How many hours will James have to work each week?

- 5.) Suppose the formula for calculating the number of baskets a basketball team is projected to make during their first game is two times the sum of twenty-nine and two times the difference of thirteen and nine games. How many baskets is the team projected to make?

- 6.) Suppose the formula for calculating the height of a rocket during its flight is five times the sum of eighty-six and two times the difference of twenty-four and seven meters. How high is the rocket projected to fly?

- 7.) Suppose the formula for calculating the average depth of a rift valley in the ocean is two times the difference of eighty-seven and three times the difference of thirty-three and five miles. What is the average depth of the valley?

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**COLONEL
WORD**

ORDER OF OPERATIONS BOOT CAMP LEVEL 9 MASTERY A

NAME:

1.) Suppose the formula for calculating the number of games a basketball team is projected to win during the next season is five times the difference of twenty-seven and three times the difference of eighteen and fourteen games. How many games is the team projected to win?

2.) Suppose the formula for calculating the height of a rocket during its flight is seven times the sum of sixty-six and two times the difference of twenty-four and seventeen meters. How high is the rocket projected to fly?

3.) Julio has a job mowing lawns during the summer. Suppose the formula for calculating the number of hours he will have to work each week is six times the difference of forty-eight and three times the difference of seventeen and four hours. How many hours will Julio have to work each week?

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**COLONEL
WORD**

ORDER OF OPERATIONS BOOT CAMP

LEVEL 9 MASTERY B

NAME:

1.) Suppose the formula for calculating the number of games a football team is projected to win during the next season is two times the difference of twenty-seven and four times the difference of fifteen and nine games. How many games is the team projected to win?

2.) Suppose the formula for calculating the height of a rocket in flight is eight times the sum of forty-seven and three times the difference of thirty-four and twenty-nine meters. How high is the rocket projected to fly?

3.) Jamal has a job mowing lawns during the summer. Suppose the formula for calculating the number of hours he will have to work each week is seven times the difference of forty-six and three times the difference of sixteen and two hours. How many hours will Jamal have to work each week?

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**GENERAL
TEACHER**

ORDER OF OPERATIONS BOOT CAMP

LEVEL 10

Congratulations! You have successfully mastered the critical algebraic concept of using order of operations. Given your acumen for this particular skill, you have been promoted to the post of General. A General is an individual who is responsible for leading a number of people. They must be a role model, leader, and teacher. You now have the opportunity to impact an individual in a very meaningful way. Knowing the order of operations is the backbone of high school and college mathematics, and if you are able to help classmates master this skill, you will be empowering their math skills.

You are now working collaboratively with the only Order of Operations Boot Camp Five-Star General, your teacher. Good luck to you!

