Section 1.3 – Order of Operations

This booklet belongs to:_____Block: _____

- There is a sequence of solving equations, **an order to follow**, just like a recipe.
- It goes like this:

B – **Brackets:**	Get inside any brackets then start the list again, are there more? Otherwise continue...
E – **Exponents:**	Solve any exponential statement and write as a result (repeated multiplication of the base)
D – **Division:**	Do any **multiplication and division** statements at the **same time from left to right**
M – **Multiplication:**	Do any **multiplication and division** statements at the **same time from left to right**
A – **Addition:**	Do any remaining **addition and subtraction** at the **same time, from left to right**
S – **Subtraction:**	Do any remaining **addition and subtraction** at the **same time, from left to right**

Example 1:

$$2 \cdot 3 + 5 \div 5$$

$$6 + 5 \div 5$$
$$6 + 1$$
$$7$$

Example 2:

$$4^2 \cdot 2 + 6 - 3$$

$$16 \cdot 2 + 6 - 3$$
$$32 + 6 - 3$$
$$38 - 3$$
$$35$$

Example 3:

$$5(2+3-6)\cdot 4 \div 2$$

$$5(5-6)\cdot 4 \div 2$$
$$5(-1)\cdot 4 \div 2$$
$$(-5)\cdot 4 \div 2$$
$$-20 \div 2$$
$$-10$$

Example 4:

$$5+\{6^2 \div 2(5-2+3)\}$$

$$5+\{6^2 \div 2(3+3)\}$$
$$5+\{6^2 \div 2(6)\}$$
$$5+\{36 \div 2(6)\}$$
$$5+\{18 \cdot 6\}$$
$$5+\{108\}$$
$$113$$

Example 5:

$$(15-4+5 \div 5-2\cdot 3)^2$$

$$(15-4+1-2\cdot 3)^2$$
$$(15-4+1-6)^2$$
$$(11+1-6)^2$$
$$(12-6)^2$$
$$(6)^2$$
$$36$$

Section 1.3 – Practice Questions

EMERGING LEVEL QUESTIONS

Calculate the following using your Order of Operations

1. $6 + 2 \cdot 3$

2. $2 \cdot 3 + 2 \cdot 4$

3. $4 \cdot 6 - 5 \cdot 3$

4. $16 - 8 \div 4 - 2$

5. $12 \div 3 - 16 \div 8$

6. $25 - 18 \div 6 - 10$

7. $7 - 3 - 10 \div 2$

8. $-6 \cdot 2 - 4 - 2$

PROFICIENT LEVEL QUESTIONS

Calculate the following using your Order of Operations

9. $6 - (2 \cdot 3)$

10. $(6 - 2) + 3$

11. $-8-(5-3)$

12. $(-8-5)-3$

13. $-(8-3)+(3-7)$

14. $100 \div (10 \div 5)$

15. $(128 \div 32) \div 2$

16. $5 \cdot 10-(7+3) \div -2$

Calculate the following using your Order of Operations

17. $3 \cdot 2^3$

18. $(3 \cdot 2)^3$

19. $-5-3^2$

20. $(-5-3)^2$

21. $2^4 \div 2^2 \cdot 2^5 \div 2^3$

22. $(2^4 \div 2^2) \cdot (2^5 \div 2^3)$

23. $\dfrac{6 + 3 \cdot 4}{6 + 3 \cdot 4}$

24. $\dfrac{(6 + 3)(4)}{(6 + 3)(4)}$

EXTENDING LEVEL QUESTIONS

Simplify the following using your Order of Operations

25. $12 + 2[(20 - 8) - (1 + 3^2)]$

26. $\dfrac{(-2)^3 + 4^2}{3 - 5^2 + 3 \cdot 6}$

27. $20 \div 4 + \{2 \cdot 3^2 - [3 + (6 - 2)]\}$

28. $\dfrac{40 - 1^3 - 2^4}{3(2 + 5) + 2}$

Answer Key – Section 1.3

1. 12	2. 14	3. 9	4. 12	5. 2	6. 12	7. -1
8. -18	9. 0	10. 7	11. -10	12. -16	13. -9	14. 50
15. 2	16. 55	17. 24	18. 216	19. -14	20. 64	21. 16
22. 16	23. 1	24. 1	25. 16	26. -2	27. 16	28. 1

Extra Work Space