

**Basic Arithmetic**  
**Skill-Builder # W – 11A**  
**Performing Combined Operations on Whole Numbers**

When performing combined operations on whole numbers, follow **PEMDAS** (**P**arentheses, **E**xponentiation, **M**ultiplication, **D**ivision, **A**ddition, **S**ubtraction). This means everything within parentheses (or any other symbol of grouping) has to be performed first, then all exponentiations; multiplication and division need to be performed in the order in which they appear from left to right; likewise, addition and subtraction need to be performed in the order in which they appear from left to right.

Examples

1.  $12 + 20 \cdot 4$

Solution:

$$12 + \underbrace{20 \cdot 4}$$

The operations are A and M, so M goes first.

$$= 12 + 80$$

20 times 4 equals 80.

$$= 92$$

Add 12 and 80 to get 92.

2.  $18 + 36 \div 9 - 8$

Solution:

$$18 + \underbrace{36 \div 9} - 8$$

D has to be performed before A or S.

$$= \underbrace{18 + 4} - 8$$

Divide 36 by 9 to get 4.

$$= 22 - 8$$

Add 18 and 4 to get 22.

$$= 14$$

Subtract 8 from 22 to get 14.

3.  $4 \cdot 10 \div 2^3$

Solution:

$$4 \cdot 10 \div \underbrace{2^3}$$

E has to be performed before M or D.

$$= \underbrace{4 \cdot 10} \div 8$$

$2^3 = 2 \cdot 2 \cdot 2 = 8$

$$= 40 \div 8$$

Multiply 4 by 10 to get 40.

$$= 5$$

Divide 40 by 8 to get 5.

4.  $(5 \cdot 5 - 4 \cdot 5)^2$

Solution:

$$(5 \cdot 5 - 4 \cdot 5)^2$$

Perform the operations inside the parentheses first.

$$= (25 - 20)^2$$

Multiply 5 by 5 and 4 by 5 to get 25 and 20, respectively.

$$= 5^2$$

Subtract 20 from 25 to get 5.

$$= 25$$

$5^2 = 5 \cdot 5 = 25$

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Find the value of the given numeric expression.

1.  $32 - 5 \cdot 6$

2.  $14 + 35 \div 7$

3.  $8 \cdot 3 \div 6$

4.  $48 \div 8 \cdot 5$

5.  $12 + 34 - 28$

6.  $31 - 14 + 42$

7.  $2 \cdot 5^2 - 5$

8.  $20 - 2^2 \cdot 3$

9.  $6 + 45 \div 3^2$

10.  $5 \cdot 2^3 - 2 \cdot 3^2$

11.  $4^2 + 6^2$

12.  $(4 + 6)^2$

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**Answers**

1. 2
2. 19
3. 4
4. 30
5. 18
6. 59
7. 45
8. 8
9. 11
10. 22
11. 52
12. 100

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