

Algebra: Order of Operations (PEMDAS)



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DIRECTIONS

Simplify each expression using the correct order of operations (PEMDAS). Show each step clearly.

1. Simplify (left to right):

$$2 + 3 - 5 + 6 + 7 + 20$$

Answer: _____

2. Simplify (left to right):

$$25 \div 5 \times 9 \div 15 \times 3$$

Answer: _____

3. Simplify using PEMDAS:

$$20 - 4 \times 3 + 4$$

Answer: _____

4. Simplify using PEMDAS:

$$30 \div 15 + 2 \times 4 - 3$$

Answer: _____

5. Simplify using PEMDAS:

$$5 + 3 \times 2 - 8 \div 4$$

Answer: _____

6. Simplify using PEMDAS:

$$18 \div 3 + 4 \times 2 - 5$$

Answer: _____

7. Simplify:

$$3^3 - 7 + (2 \times 3)$$

Answer: _____

8. Simplify:

$$(2^2 + 1)^2 + (100 \div 5 + 3)$$

Answer: _____

9. Simplify:

$$4 \times (3 + 2) - 2^3$$

Answer: _____

10. Simplify:

$$(6 - 2)^2 \div 8 + 3 \times 5$$

Answer: _____

Based on the Numberbender lesson "ALGEBRA: Order of Operations" • youtu.be/q3nEMF34x6c

Answer Key & Solutions

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TEACHER NOTES

Items 1-2: left-to-right evaluation at the same level. Items 3-6: mix of $+$ $-$ \times \div requiring PEMDAS. Items 7-10: include parentheses and/or exponents — reinforce P and E steps first.

1. Simplify (left to right): $2 + 3 - 5 + 6 + 7 + 20$

Answer: 33

All $+/-$, left to right: $2+3=5$, $-5=0$, $+6=6$, $+7=13$, $+20=33$.

2. Simplify (left to right): $25 \div 5 \times 9 \div 15 \times 3$

Answer: 9

All \times/\div , left to right: $25\div5=5$, $\times9=45$, $\div15=3$, $\times3=9$.

3. Simplify using PEMDAS: $20 - 4 \times 3 + 4$

Answer: 12

Multiply first: $4\times3=12$; then $20-12+4=12$.

4. Simplify using PEMDAS: $30 \div 15 + 2 \times 4 - 3$

Answer: 7

$30\div15=2$ and $2\times4=8$; then $2+8-3=7$.

5. Simplify using PEMDAS: $5 + 3 \times 2 - 8 \div 4$

Answer: 9

$3\times2=6$ and $8\div4=2$; then $5+6-2=9$.

6. Simplify using PEMDAS: $18 \div 3 + 4 \times 2 - 5$

Answer: 9

$18\div3=6$ and $4\times2=8$; then $6+8-5=9$.

7. Simplify: $3^3 - 7 + (2 \times 3)$

Answer: 26

$3^3=27$, $2\times3=6$; then $27-7+6=26$.

8. Simplify: $(2^2 + 1)^2 + (100 \div 5 + 3)$

Answer: 48

$(2^2+1)^2=(5)^2=25$; $100\div5+3=23$; $25+23=48$.

9. Simplify: $4 \times (3 + 2) - 2^3$

Answer: 12

$3+2=5$; $4\times5=20$; $2^3=8$; $20-8=12$.

10. Simplify: $(6 - 2)^2 \div 8 + 3 \times 5$

Answer: 17

$(6-2)^2=16$; $16\div8=2$; $3\times5=15$; $2+15=17$.