KIDSLEARN MATH · PRACTICE ASSIGNMENT

Order of Operations

Name: Date: Score: / 50

Brackets first, then powers, then × and ÷ from left to right, then + and − from left to right. Rewrite the expression after each step so you don't lose track. Answers are at the end.

Part A — Warm-up

1. Find the value of $8 \times 9 + 2$.

2. Evaluate $2 + 3 \times 3$.

3. Work out $3 \times 9 + 9$.

4. Work out $5 \times 8 + 3$.

5. Evaluate $9 \times 5 - 23$.

6. Evaluate $7 \times 8 - 2$.

7. Find the value of $4 \times 6 - 2$.

8. $4 \times 9 + 5 \times 3 = ?$

9. Evaluate $63 \div 7 \times 5$.

10. Work out $12 - 7 + 16$.

11. Evaluate $25 \div 5 \times 8$.

12. Find the value of $3 \times 6 \div 2$.

13. Work out $(3 + 7) \div 5$.

14. Evaluate $(2 + 4) \times 3$.

15. Evaluate $(9 + 18) \div 3$.

Part B — Core practice

16. Work out $6 - 2 + 6 \times 11$.

17. $17 - 8 + 9 \times 11 = ?$

18. $18 - 7 + 2 \times 9 = ?$

19. $8 - 5 + 6 \times 14 = ?$

20. Work out $5 \times 5 - 9 + 14$.

21. Work out $5 \times 3 - 25 \div 5$.

22. $8 \times 4 - 72 \div 6 = ?$

23. Evaluate $48 \div 8 + 4 \times 2$.

24. Find the value of $24 + 54 \div 6$.

25. $9 \times (12 + 2) - 4 = ?$

26. Work out $6 \times (11 + 7) - 15$.

27. Evaluate $(4 + 4) \div 2 + 15$.

28. $9 \times (8 + 7) - 18 = ?$

29. Work out $15 + (3 - 2) \times 5$.

30. Work out $12 + 7^2$.

31. Evaluate $6^2 - 2 \times 2$.

32. Evaluate $(8 + 2)^2 - 5$.

33. $3^3 - 4 \times 4 = ?$

34. Find the value of $4^3 - 5 \times 5$.

35. Ava worked out $10 + 9 \times 5$ from left to right and got 95. What is the correct answer?

36. How much bigger is $(7 + 5) \times 9$ than $7 + 5 \times 9$?

37. Ali says $29 - 4 + 8 = 17$ because he added first. What is the correct answer?

38. How much bigger is $(15 + 9) \times 2$ than $15 + 9 \times 2$?

Part C — Challenge

39. Find the value of $(8 + 4)^2 \div 8 + 8$.

40. Work out $9 + 6 \times (8^2 - 3)$.

41. $(4 + 6)^2 \div 4 + 5 = \,?$

42. Work out $6 + 5 \times (8^2 - 3)$.

43. Work out $4 \times [5 + (7 - 5)^2]$.

44. Evaluate $3 \times [4 + (6 - 3)^2]$.

45. Work out $5 \times [6 + (11 - 7)^2]$.

46. The fraction bar works like brackets. Work out $\dfrac{7 \times 4 + 4}{2} - 7$.

47. The fraction bar works like brackets. Work out $\dfrac{8 \times 4 + 13}{5} - 3$.

48. A root works like brackets. Work out $4 \times \sqrt{12^2 + 16^2} - 6$.

49. Which placing of brackets makes $6 + 8 \times 6 - 3 = 81$ true?

(A) $(6 + 8 \times 6) - 3$

(B) $(6 + 8) \times 6 - 3$

(C) $6 + 8 \times (6 - 3)$

(D) $(6 + 8) \times (6 - 3)$

50. Which placing of brackets makes $9 + 4 \times 7 - 4 = 39$ true?

(A) $(9 + 4) \times 7 - 4$

(B) $(9 + 4 \times 7) - 4$

(C) $9 + 4 \times (7 - 4)$

(D) $(9 + 4) \times (7 - 4)$

Answer Key — Order of Operations

1. 74
   Multiply first. $8 \times 9 + 2 \to 72 + 2 \to 74$.

2. 11
   Multiply first. $2 + 3 \times 3 \to 2 + 9 \to 11$.

3. 36
   Multiply first. $3 \times 9 + 9 \to 27 + 9 \to 36$.

4. 43
   Multiply first. $5 \times 8 + 3 \to 40 + 3 \to 43$.

5. 22
   Multiply first. $9 \times 5 - 23 \to 45 - 23 \to 22$.

6. 54
   Multiply first. $7 \times 8 - 2 \to 56 - 2 \to 54$.

7. 22
   Multiply first. $4 \times 6 - 2 \to 24 - 2 \to 22$.

8. 51
   Do both multiplications first. $4 \times 9 + 5 \times 3 \to 36 + 15 \to 51$.

9. 45
   $\times$ and $\div$ are equal rank, so divide first because it comes first. $63 \div 7 \times 5 \to 9 \times 5 \to 45$.

10. 21
    $+$ and $-$ are equal rank, so go left to right (not $12 - (7 + 16)$). $12 - 7 + 16 \to 5 + 16 \to 21$.

11. 40
    $\times$ and $\div$ are equal rank, so divide first because it comes first. $25 \div 5 \times 8 \to 5 \times 8 \to 40$.

12. 9
    Left to right. $3 \times 6 \div 2 \to 18 \div 2 \to 9$.

13. 2
    Brackets first. $(3 + 7) \div 5 \to 10 \div 5 \to 2$.

14. 18
    Brackets first. $(2 + 4) \times 3 \to 6 \times 3 \to 18$.

15. 9
    Brackets first. $(9 + 18) \div 3 \to 27 \div 3 \to 9$.

16. 70
    Multiply first, then left to right. $6 - 2 + 6 \times 11 \to 6 - 2 + 66 \to 4 + 66 \to 70$.

17. 108
    Multiply first, then left to right. $17 - 8 + 9 \times 11 \to 17 - 8 + 99 \to 9 + 99 \to 108$.

18. 29
    Multiply first, then left to right. $18 - 7 + 2 \times 9 \to 18 - 7 + 18 \to 11 + 18 \to 29$.

19. 87
    Multiply first, then left to right. $8 - 5 + 6 \times 14 \to 8 - 5 + 84 \to 3 + 84 \to 87$.

20. 30
    Multiply first, then left to right. $5 \times 5 - 9 + 14 \to 25 - 9 + 14 \to 16 + 14 \to 30$.

21. 10
    Do the $\times$ and the $\div$ first. $5 \times 3 - 25 \div 5 \to 15 - 5 \to 10$.

22. 20
    Do the $\times$ and the $\div$ first. $8 \times 4 - 72 \div 6 \to 32 - 12 \to 20$.

23. 14
    Do the $\div$ and the $\times$ first. $48 \div 8 + 4 \times 2 \to 6 + 8 \to 14$.

24. 33
    Divide before you add. $24 + 54 \div 6 \to 24 + 9 \to 33$.

25. 122
    Brackets, then multiply, then subtract. $9 \times (12 + 2) - 4 \to 9 \times 14 - 4 \to 126 - 4 \to 122$.

26. 93
    Brackets, then multiply, then subtract. $6 \times (11 + 7) - 15 \to 6 \times 18 - 15 \to 108 - 15 \to 93$.

27. 19
    Brackets, then divide, then add. $(4 + 4) \div 2 + 15 \to 8 \div 2 + 15 \to 4 + 15 \to 19$.

28. 117
    Brackets, then multiply, then subtract. $9 \times (8 + 7) - 18 \to 9 \times 15 - 18 \to 135 - 18 \to 117$.

29. 20
    Brackets, then multiply, then add. $15 + (3 - 2) \times 5 \to 15 + 1 \times 5 \to 15 + 5 \to 20$.

30. 61
    Power first. $12 + 7^2 \to 12 + 49 \to 61$.

31. 32
    Power and multiplication first, then subtract. $6^2 - 2 \times 2 \to 36 - 4 \to 32$.

32. 95

Brackets, then the power (not $8^2 + 2^2$). $(8 + 2)^2 - 5 \to 10^2 - 5 \to 100 - 5 \to 95$.

33. 11

Power and multiplication first, then subtract. $3^3 - 4 \times 4 \to 27 - 16 \to 11$.

34. 39

Power and multiplication first, then subtract. $4^3 - 5 \times 5 \to 64 - 25 \to 39$.

35. 55

Multiply first: $9 \times 5 = 45$, then $10 + 45 = 55$.

36. 56

$(7 + 5) \times 9 = 12 \times 9 = 108$ and $7 + 5 \times 9 = 7 + 45 = 52$. Difference $108 - 52 = 56$.

37. 33

$+$ and $-$ go left to right: $29 - 4 = 25$, then $25 + 8 = 33$.

38. 15

$(15 + 9) \times 2 = 24 \times 2 = 48$ and $15 + 9 \times 2 = 15 + 18 = 33$. Difference $48 - 33 = 15$.

39. 26

$(8 + 4)^2 \div 8 + 8 \to 12^2 \div 8 + 8 \to 144 \div 8 + 8 \to 18 + 8 \to 26$.

40. 375

$9 + 6 \times (8^2 - 3) \to 9 + 6 \times (64 - 3) \to 9 + 6 \times 61 \to 9 + 366 \to 375$.

41. 30

$(4 + 6)^2 \div 4 + 5 \to 10^2 \div 4 + 5 \to 100 \div 4 + 5 \to 25 + 5 \to 30$.

42. 311

$6 + 5 \times (8^2 - 3) \to 6 + 5 \times (64 - 3) \to 6 + 5 \times 61 \to 6 + 305 \to 311$.

43. 36

Innermost brackets first. $4 \times [5 + (7 - 5)^2] \to 4 \times [5 + 2^2] \to 4 \times [5 + 4] \to 4 \times 9 \to 36$.

44. 39

Innermost brackets first. $3 \times [4 + (6 - 3)^2] \to 3 \times [4 + 3^2] \to 3 \times [4 + 9] \to 3 \times 13 \to 39$.

45. 110

Innermost brackets first. $5 \times [6 + (11 - 7)^2] \to 5 \times [6 + 4^2] \to 5 \times [6 + 16] \to 5 \times 22 \to 110$.

46. 9

Top first: $7 \times 4 + 4 = 32$. Then $32 \div 2 = 16$ and $16 - 7 = 9$.

47. 6

Top first: $8 \times 4 + 13 = 45$. Then $45 \div 5 = 9$ and $9 - 3 = 6$.

48. 74

Under the root first: $144 + 256 = 400$, so $\sqrt{400} = 20$. Then $4 \times 20 - 6 = 80 - 6 = 74$.

49. **(B)** $(6 + 8) \times 6 - 3$

Try each one: $(6 + 8) \times 6 - 3 = 81$; $6 + 8 \times (6 - 3) = 30$; $(6 + 8) \times (6 - 3) = 42$; $(6 + 8 \times 6) - 3 = 51$. Only $(6 + 8) \times 6 - 3$ gives 81.

50. **(D)** $(9 + 4) \times (7 - 4)$

Try each one: $(9 + 4) \times 7 - 4 = 87$; $9 + 4 \times (7 - 4) = 21$; $(9 + 4) \times (7 - 4) = 39$; $(9 + 4 \times 7) - 4 = 33$. Only $(9 + 4) \times (7 - 4)$ gives 39.