

Practice 1-1 Variables and Expressions

Write an expression for each quantity.

1. the value in cents of 5 quarters _____
2. the value in cents of q quarters _____
3. the number of months in 7 years _____
4. the number of months in y years _____
5. the number of gallons in 21 quarts _____
6. the number of gallons in q quarts _____

Write a variable expression for each word phrase.

- | | |
|--|--|
| 7. 9 less than k
_____ | 8. m divided by 6
_____ |
| 9. twice x
_____ | 10. 4 more than twice x
_____ |
| 11. the sum of eighteen and b
_____ | 12. three times the quantity 2 plus a
_____ |

Tell whether each expression is a numerical expression or a variable expression. For a variable expression, name the variable.

- | | |
|----------------------------|---------------------------|
| 13. $4d$ _____ | 14. $74 + 8$ _____ |
| 15. $\frac{4(9)}{6}$ _____ | 16. $14 - p$ _____ |
| 17. $5k - 9$ _____ | 18. $3 + 3 + 3 + 3$ _____ |
| 19. $19 + 3(12)$ _____ | 20. $25 - 9 + x$ _____ |

The room temperature is c degrees centigrade. Write a word phrase for each expression.

21. $c + 15$

22. $c - 7$

Practice 1-2 The Order of Operations

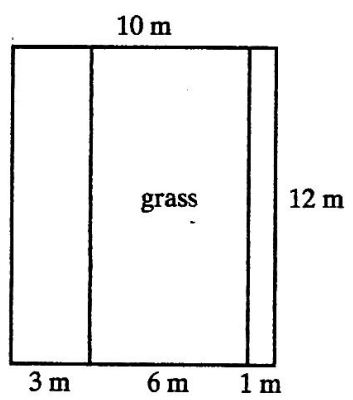
Simplify each expression.

- | | |
|--|----------------------------------|
| 1. $3 + 15 - 5 \cdot 2$ _____ | 2. $5 \cdot 6 + 2 \cdot 4$ _____ |
| 3. $48 \div 8 - 1$ _____ | 4. $68 - 12 \div 2 \div 3$ _____ |
| 5. $6(2 + 7)$ _____ | 6. $25 - (6 \cdot 4)$ _____ |
| 7. $3[9 - (6 - 3)] - 10$ _____ | 8. $60 \div (3 + 12)$ _____ |
| 9. $4 - 2 + 6 \cdot 2$ _____ | 10. $18 \div (5 - 2)$ _____ |
| 11. $\frac{16 + 24}{30 - 22}$ _____ | 12. $2[4(9 - 7) + 1]$ _____ |
| 13. $(8 \div 8 + 2 + 11) \div 2$ _____ | 14. $9 + 3 \cdot 4$ _____ |
| 15. $18 \div 3 \cdot 5 - 4$ _____ | 16. $10 + 28 \div 14 - 5$ _____ |

Insert grouping symbols to make each number sentence true.

- | | |
|---------------------------------|------------------------------|
| 17. $3 + 5 \cdot 8 = 64$ | 18. $4 \cdot 6 - 2 + 7 = 23$ |
| 19. $10 \div 3 + 2 \cdot 4 = 8$ | 20. $3 + 6 \cdot 2 = 18$ |

A city park has two walkways with a grassy area in the center, as shown in the diagram.



21. Write an expression for the area of the sidewalks, using subtraction.

22. Write an expression for the area of the sidewalks, using addition.

Compare. Use $>$, $<$, or $=$ to complete each statement.

- | | |
|--|--|
| 23. $(24 - 8) \div 4$ <input type="checkbox"/> $24 - 8 \div 4$ | 24. $3 \cdot (4 - 2) \cdot 5$ <input type="checkbox"/> $3 \cdot 4 - 2 \cdot 5$ |
| 25. $(22 + 8) \div 2$ <input type="checkbox"/> $22 + 8 \div 2$ | 26. $20 \div 2 + 8 \cdot 2$ <input type="checkbox"/> $20 \div (2 + 8) \cdot 2$ |
| 27. $11 \cdot 4 - 2$ <input type="checkbox"/> $11 \cdot (4 - 2)$ | 28. $(7 \cdot 3) - (4 \cdot 2)$ <input type="checkbox"/> $7 \cdot 3 - 4 \cdot 2$ |

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