

Unit 1 - Foundations of Algebra TestEvaluate the expression when $x = 3$, $y = 4$ and $z = 5$.

1. $x + 5y^2$

2. $9z + 7y - 2$

3. $(4x + 5y) \div 7$

4. $4x^3 + 5z$

5. $\frac{5}{y} - \frac{z}{4}$

6. $x^4 - 2(y - 4)$

7. $8 - (-5) + 2x$

8. $|-5| - 9x + 2$

9. $-8y^2 + 9z + 4$

Simplify each expression.

10. $(-x)^3(2)^2$

11. $8(x - 4)$

12. $(6 - y)(12)$

13. $-11(x + 7)$

14. $5(3 - x) + x$

15. $2x + 5(5 - 14x)$

Tell whether the given equation has the ordered pair as a solution.

16. $y - 2x = 6$ (2, 13)

17. $y = 2x - 3$ (2, 1)

18. $x + 3 = y - 7$ (3, 12)

19. $3x - 1 = 8y$ (4, 1)

Unit 1 - Foundations of Algebra Test

Write each algebraic expression.

- 20. The ratio of sixteen and x .

- 21. The sum of a number y and five is equal to seven.

- 22. The quotient of x and three is four times the number y .

- 23. Three times the number x is twenty one.

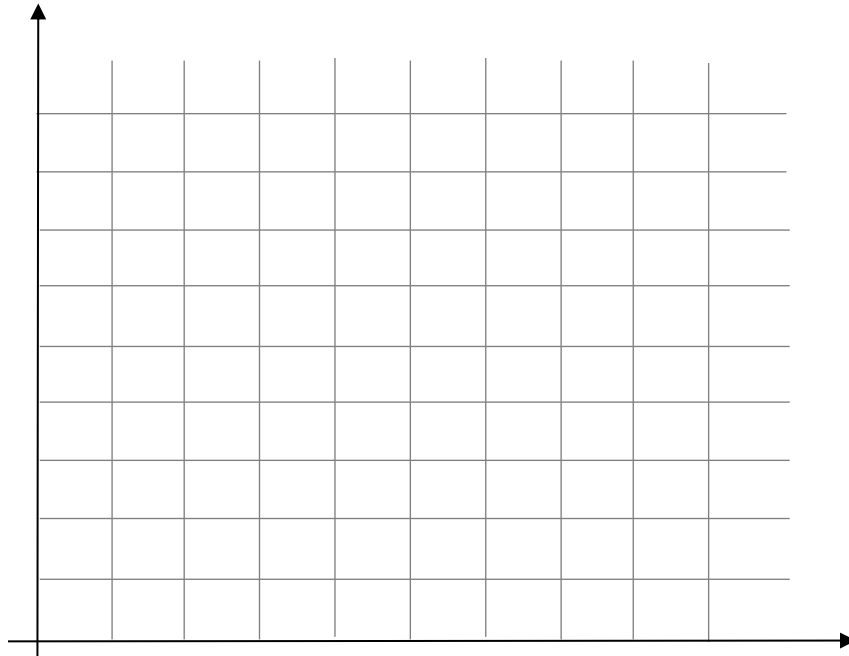
Determine whether the equation is TRUE, FALSE or OPEN. Explain.

- 24. $(3 \cdot 2)^3 = 3 \cdot 2^3$
- 25. $8 - 6 = s - 8$
- 26. $8 = y^2 + 3$

- 27. $\frac{12}{3} = 4$
- 28. $9x = x^3$
- 29. $38 \cdot 0.1 = 0.38$

Use a table, an equation, and a graph to represent the relationship.

- 30. Kyle makes 5 baskets every hour.



Unit 1 - Foundations of Algebra Test**ANSWER**Evaluate the expression when $x = 3$, $y = 4$ and $z = 5$.

$$\begin{aligned} 1. \quad x + 5y^2 \\ &= 3 + 5(4^2) \\ &= 3 + 5(16) \\ &= 3 + 80 \\ &= \mathbf{83} \end{aligned}$$

$$\begin{aligned} 2. \quad 9z + 7y - 2 \\ &= 9(5) + 7(4) - 2 \\ &= 45 + 28 - 2 \\ &= 45 + 26 \\ &= \mathbf{71} \end{aligned}$$

$$\begin{aligned} 3. \quad (4x + 5y) \div 7 \\ &= (4(3) + 5(4)) \div 7 \\ &= (12 + 20) \div 7 \\ &= 32 \div 7 \\ &= \mathbf{\frac{32}{7}} \end{aligned}$$

$$\begin{aligned} 4. \quad 4x^3 + 5z \\ &= 4(3^3) + 5(5) \\ &= 4(27) + 25 \\ &= 108 + 25 \\ &= \mathbf{133} \end{aligned}$$

$$\begin{aligned} 5. \quad \frac{5}{y} - \frac{z}{4} \\ &= \frac{5}{4} - \frac{5}{4} \\ &= \mathbf{0} \end{aligned}$$

$$\begin{aligned} 6. \quad x^4 - 2(y - 4) \\ &= 3^4 - 2(4 - 4) \\ &= 81 - 2(0) \\ &= \mathbf{81} \end{aligned}$$

$$\begin{aligned} 7. \quad 8 - (-5) + 2x \\ &= 8 + 5 + 2(3) \\ &= 13 + 6 \\ &= \mathbf{19} \end{aligned}$$

$$\begin{aligned} 8. \quad |-5| - 9x + 2 \\ &= 5 - 9(3) + 2 \\ &= 7 - 27 \\ &= \mathbf{-20} \end{aligned}$$

$$\begin{aligned} 9. \quad -8y^2 + 9z + 4 \\ &= -8(4^2) + 9(5) + 4 \\ &= -8(16) + 45 + 4 \\ &= -128 + 49 \\ &= \mathbf{-79} \end{aligned}$$

Simplify each expression.

$$\begin{aligned} 10. \quad (-x)^3(2)^2 \\ &= (-x^3)(4) \\ &= \mathbf{-4x^3} \end{aligned}$$

$$\begin{aligned} 11. \quad 8(x - 4) \\ &= 8(x) - 8(4) \\ &= \mathbf{8x - 32} \end{aligned}$$

$$\begin{aligned} 12. \quad (6 - y)(12) \\ &= 6(12) - y(12) \\ &= \mathbf{90 - 12y} \end{aligned}$$

$$\begin{aligned} 13. \quad -11(x + 7) \\ &= (-11)(x) + (-11)(7) \\ &= \mathbf{-11x - 77} \end{aligned}$$

$$\begin{aligned} 14. \quad 5(3 - x) + x \\ &= 5(3) + 5(-x) + x \\ &= 15 - 5x + x \\ &= \mathbf{15 - 4x} \end{aligned}$$

$$\begin{aligned} 15. \quad 2x + 5(5 - 14x) \\ &= 2x + 5(5) + 5(-14x) \\ &= 2x + 25 - 70x \\ &= \mathbf{25 - 68x} \end{aligned}$$

Tell whether the given equation has the ordered pair as a solution.

$$\begin{aligned} 16. \quad y - 2x = 6 \quad (2, 13) \\ &13 - 2(2) = 6 \\ &13 - 4 = 6 \\ &\mathbf{9 \neq 6} \end{aligned}$$

$$\begin{aligned} 17. \quad y = 2x - 3 \quad (2, 1) \\ &1 = 2(2) - 3 \\ &1 = 4 - 3 \\ &\mathbf{1 = 1} \end{aligned}$$

$$\begin{aligned} 18. \quad x + 3 = y - 7 \quad (3, 12) \\ &3 + 3 = 12 - 7 \\ &\mathbf{6 \neq 5} \end{aligned}$$

$$\begin{aligned} 19. \quad 3x - 1 = 8y \quad (4, 1) \\ &3(4) - 1 = 8(1) \\ &12 - 1 = 8 \\ &\mathbf{11 \neq 8} \end{aligned}$$

Write each algebraic expression.

$$20. \text{ The ratio of sixteen and } x. \quad \mathbf{16/x}$$

Unit 1 - Foundations of Algebra Test

21. The sum of a number y and five is equal to seven. $y + 5 = 7$
22. The quotient of x and three is four times the number y . $\frac{x}{3} = 4y$
23. Three times the number x is twenty one. $3x = 21$

Determine whether the equation is TRUE, FALSE or OPEN. Explain.

24. $(3 \cdot 2)^3 = 3 \cdot 2^3$
 $(6)^3 = 3 \cdot 8$
 $216 \neq 24$
FALSE
25. $8 - 6 = s - 8$
Variable s
OPEN
26. $8 = y^2 + 3$
Variable y
OPEN
27. $\frac{12}{3} = 4$
 $4 = 4$
TRUE
28. $9x = x^3$
Variable x
OPEN
29. $38 \cdot 0.1 = 0.38$
 $3.8 \neq 0.38$
FALSE

Use a table, an equation, and a graph to represent the relationship.

30. Kyle makes 5 baskets every hour.

$$p = 5(t)$$

Where: p = Total number of baskets made
 t = number of hours

t (hour)	p (pcs)
0	0
1	5
2	10
3	15
4	20
5	25
6	30
7	35
8	40

