

Algebra Questions with Answers for Grade 9

- Simplify the following algebraic expressions.

A. $-6x + 5 + 12x - 6$

B. $2(x - 9) + 6(-x + 2) + 4x$

C. $3x^2 + 12 + 9x - 20 + 6x^2 - x$

D. $(x + 2)(x + 4) + (x + 5)(-x - 1)$

E. $1.2(x - 9) - 2.3(x + 4)$

F. $(x^2y)(xy^2)$

G. $(-x^2y^2)(xy^2)$

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- Simplify the expressions.

A. $(a b^2)(a^3 b) / (a^2 b^3)$

B. $(21 x^5) / (3 x^4)$

C. $(6 x^4)(4 y^2) / [(3 x^2)(16 y)]$

D. $(4x - 12) / 4$

E. $(-5x - 10) / (x + 2)$

F. $(x^2 - 4x - 12) / (x^2 - 2x - 24)$

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- Solve for x the following linear equations.

A. $2x = 6$

B. $6x - 8 = 4x + 4$

C. $4(x - 2) = 2(x + 3) + 7$

D. $0.1 x - 1.6 = 0.2 x + 2.3$

E. $-x / 5 = 2$

F. $(x - 4) / (-6) = 3$

G. $(-3x + 1) / (x - 2) = -3$

H. $x / 5 + (x - 1) / 3 = 1/5$

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- Find any real solutions for the following quadratic equations.

A. $2x^2 - 8 = 0$

B. $x^2 = -5$

C. $2x^2 + 5x - 7 = 0$

D. $(x - 2)(x + 3) = 0$

E. $(x + 7)(x - 1) = 9$

F. $x(x - 6) = -9$

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- Find any real solutions for the following equations.

A. $x^3 - 1728 = 0$

B. $x^3 = -64$

C. $\sqrt{x} = -1$

D. $\sqrt{x} = 5$

E. $\sqrt{x/100} = 4$

F. $\sqrt{200/x} = 2$

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- Evaluate for the given values of **a** and **b**.

A. $a^2 + b^2$, for $a = 2$ and $b = 2$

B. $|2a - 3b|$, for $a = -3$ and $b = 5$

C. $3a^3 - 4b^4$, for $a = -1$ and $b = -2$

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- Solve the following inequalities.

A. $x + 3 < 0$

B. $x + 1 > -x + 5$

C. $2(x - 2) < -(x + 7)$

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- For what value of the constant **k** does the quadratic equation $x^2 + 2x = -2k$ have two distinct real solutions?
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- For what value of the constant **b** does the linear equation $2x + by = 2$ have a slope equal to 2?
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- What is the y intercept of the line $-4x + 6y = -12$?
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- What is the x intercept of the line $-3x + y = 3$?
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- What is point of intersection of the lines $x - y = 3$ and $-5x - 2y = -22$?
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- For what value of the constant **k** does the line $-4x + ky = 2$ pass through the point **(2,-3)**?
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- What is the slope of the line with equation $y - 4 = 10$?
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- What is the slope of the line with equation $2x = -8$?
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- Find the x and y intercepts of the line with equation $x = -3$?
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- Find the x and y intercepts of the line with equation $3y - 6 = 3$?
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- What is the slope of a line parallel to the x axis?
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- What is the slope of a line perpendicular to the x axis?

Answers to the Above Questions

1.

- A. $6x - 1$
 - B. -6
 - C. $9x^2 + 8x - 8$
 - D. 3
 - E. $-1.1x - 20$
 - F. x^3y^3
 - G. $-x^3y^4$
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2.

- A. a^2
 - B. $7x$
 - C. $(1/2)x^2y$
 - D. $x - 3$
 - E. -5
 - F. $(x + 2)/(x + 4)$
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3.

- A. $x = 3$
 - B. $x = 6$
 - C. $x = 21/2$
 - D. $x = -39$
 - E. $x = -10$
 - F. $x = -14$
 - G. no solution
 - H. $x = 1$
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- 4.
- A. solution set $\{-2,2\}$
 - B. no real solutions
 - C. solution set $\{1,-7/2\}$
 - D. solution set $\{2,-3\}$
 - E. solution set $\{2,-8\}$
 - F. solution set $\{3\}$
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- 5.
- A. $x = 12$
 - B. $x = -4$
 - C. no solutions
 - D. $x = 25$
 - E. $x = 1600$
 - F. $x = 50$
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6. Evaluate for the given values of **a** and **b**.
- A. 8
 - B. 21
 - C. -67
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- 7.
- A. $x < -3$
 - B. $x > 2$
 - C. $x < -1$
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8. $k < 1/2$

9. $b = -1$

10. (0, -2)

11. (-1, 0)

12. (4, 1)

13. $k = -10/3$

14. slope = 0

15. The slope is undefined

16. x - intercept: (-3, 0), no y - intercept.

17. no x - intercept, y - intercept: (0, 3)

18. slope = 0

19. The slope is undefined.