

Elementary Algebra Study Guide

These are problems that are studied in the elementary algebra class.

1. Evaluate $x^3 + 5$ when $x = 10$. 2. Find the LCM of 16 and 24.

3. Find the absolute value of -9 .

Compute and simplify.

4. $6.3 + (8.4) + 5$ 5. $8 - (3)$ 6. $\frac{3}{11} \cdot (-\frac{22}{7})$

Simplify.

7. $4y - 5(9 - 3y)$ 8. $2^3 - 14 - 10 + (3 + 4)^3$

Solve.

9. $x + 8 = 13.6$ 10. $4x = -28$ 11. $5x + 3 = 2x - 27$

12. $5(x - 3) - 2(x + 3) = 0$ 13. $x^2 - 2x - 24 = 0$ 14. $\begin{matrix} y = x - 7 \\ 2x + y = 5 \end{matrix}$

15. $\begin{matrix} 5x - 3y = -1 \\ 3x - 2y = -2 \end{matrix}$ 16. $\frac{1}{x} - 2 = 8x$ 17. $\sqrt{x^2 - 11} = x - 1$

18. $x^2 = 7 - 3x$ 19. $2 - 3x \leq 12 - 7x$

Solve the formula for the given letter.

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20. $A = \frac{Bw + 1}{w}$ for w

21. $K = MT + 2$, for M

Simplify.

22. $\frac{x^8}{x^{B2}}$

23. $(x^{B5})^2$

24. $x^{B5} \cdot x^{B7}$

25. Collect like terms and arrange in descending order:

$$2y^3 - 3 + 4y^3 - 3y^2 + 12 - y .$$

Compute and simplify.

26. $(2x^2 - 6x + 3) - (4x^2 + 2x - 4)$

27. $B3t^2(2t^4 + 4t^2 + 1)$

28. $(x - 8)(x + 8)$

29. $(2m - 7)^2$

30. $(3ab^2 + 2c)^2$

31. $(3x^2 - 2y)(3x^2 + 4y)$

32. $\frac{x}{x^2 - 9} \cdot \frac{x - 3}{x^3}$

Factor.

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33. $3x^2 - 15x$

34. $16x^2 - 25$

35. $6x^2 - 13x + 6$

36. $x^2 - 10x + 25$

37. $x^8 - 81y^4$

Simplify.

38. $\sqrt{72}$

39. $\frac{\sqrt{54}}{\sqrt{45}}$

40. $2\sqrt{8} + 3\sqrt{18}$

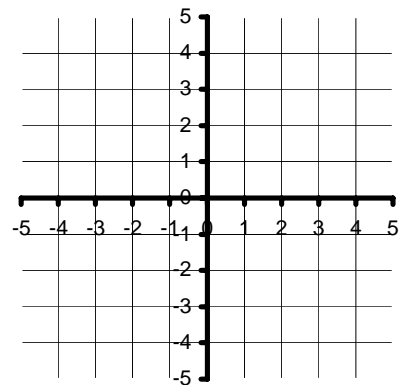
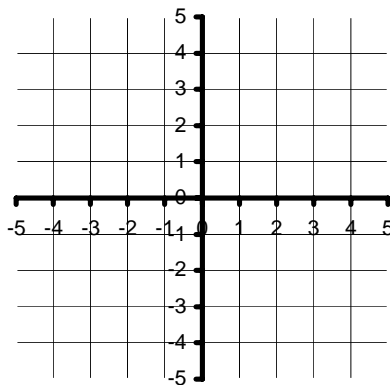
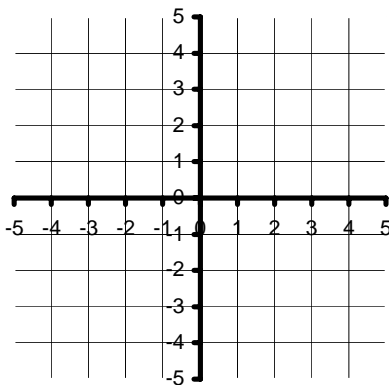
41. $\sqrt{24a^2b} \sqrt{a^3b^2}$

Graph on a coordinate plane.

42. $3x + 2y = 6$

43. $x = 2$

44. $y = x^2 - 2x + 1$

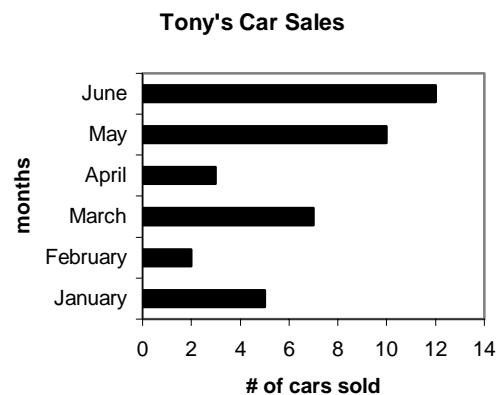


45. Graph $5 < x < 3$ on the number line.

Solve.

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46. The sum of the squares of two consecutive odd integers is 74. Find the integers.
47. Solution A is 75% alcohol and Solution B is 50% alcohol. How much of each is needed to make 60 L of a solution that is 66 $\frac{2}{3}$ % alcohol?
48. An airplane flew for 6 hours with a 10-km/h tail wind. The return flight against the same wind took 8 hr. Find the speed of the plane in still air.
49. The width of a rectangle is 3 m less than the length. The area is 88 m². Find The length and the width.
50. Find the slope of the line containing the points (2, 3) and (4, 5).
51. Determine whether the graphs of the following equations are parallel, perpendicular, or neither.
- $$y = 2x + 7$$
- $$2y + x = 6$$
52. If Peggy buys 200 shares of Nike stock for \$10,800, how many shares can she buy for \$56,160?
- 53.



The graph above shows Tony's car sales over 6 months. If he received a \$200 incentive check for each Cadillac sold in March, and $\frac{2}{7}$ of the cars he sold in March were Cadillacs, how much incentive cash did he earn that month?

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ANSWER KEY FOR THE ELEMENTARY ALGEBRA ASSESSMENT TEST STUDY GUIDE

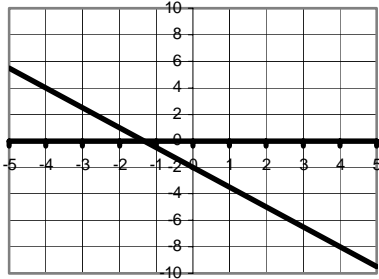
- 1.) B995 2.) 48 3.) 9 4.) B9.7
- 5.) B5 6.) $B^{6/7}$ 7.) $19y - 45$ 8.) 211
- 9.) 5.6 10.) B7 11.) B10 12.) 7
- 13.) 6, B4 14.) (4, B3) 15.) (4, 7) 16.) $\frac{1}{4}$, $B\frac{1}{2}$
- 17.) 6 18.) $\frac{B3 \pm \sqrt{37}}{2}$ 19.) $\square X \sigma \times P^{5/2} Y$ 20.) $w = \frac{1}{A - B}$
- 21.) $M = \frac{K - 2}{T}$ 22.) x^{10} 23.) $\frac{1}{x^{10}}$ 24.) $\frac{1}{x^{12}}$
- 25.) $6y^3 - 3y^2 - y + 9$ 26.) $B2x^2 - 8x + 7$ 27.) $B6t^6 - 12t^4 - 3t^2$
- 28.) $x^2 - 64$ 29.) $4m^2 - 28m + 49$ 30.) $9a^2b^4 + 12ab^2c + 4c^2$
- 31.) $9x^4 + 6x^2y - 8y^2$ 32.) $\frac{1}{x^2(x + 3)}$ 33.) $3x(x^2 - 5)$
- 34.) $(4x + 5)(4x - 5)$ 35.) $(3x - 2)(2x - 3)$ 36.) $(x - 5)^2$
- 37.) $(x^4 + 9y^2)(x^2 - 3y)(x^2 + 3y)$ 38.) $6\sqrt{2}$ 39.) $\frac{\sqrt{30}}{5}$
- 40.) $13\sqrt{2}$ 41.) $2a^2b\sqrt{6ab}$

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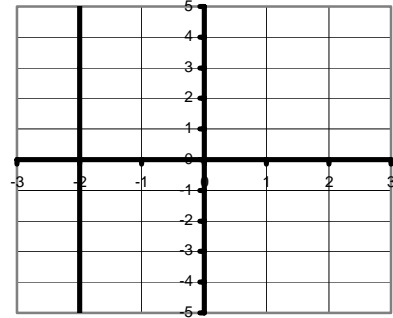
42.)

$$3x + 2y = -4$$



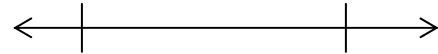
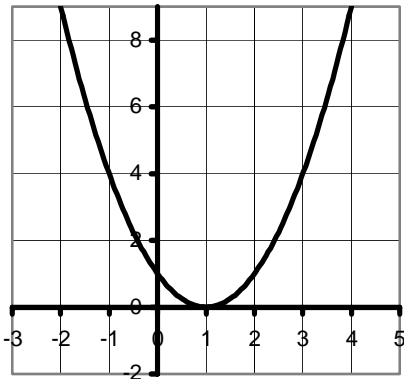
43.)

$$x = -2$$



44.) 45.)

$$y = x^2 - 2x + 1$$



46.) 5 and 7; B5 and B7

47.) 40 L of A; 20 L of B

48.) 70 km/h

49.) Length: 11m; Width: 8 m

50.) $B^4/3$

1040 shares

51.)

52.) \$400