

PRACTICE ELEMENTARY ALGEBRA ACCUPLACER QUESTIONS

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1. Simplify: $\frac{1}{2}x - 3(4 - 2x)$
2. Simplify: $x(x - 5) - 4x(x - 5)$
3. Simplify: $\frac{2x}{3} - \frac{5x}{6} + \frac{x}{4}$
4. Which of the following is negative?
– $(2 - 2.5)$
– $(2.5 - 2)$
– $(-2.5 + 2)$
– $(-2 - 2.5)$
5. If $10x = 9 - 2x$, then $x =$
6. If $8x - 7 = 14 + 3x$, then $x =$
7. If $\frac{4x}{3} = 6 - \frac{x}{4}$, then $x =$
8. If $\frac{x}{2} - \frac{1}{4} = 3 + \frac{5x}{6}$, then $x =$
9. If $\frac{x+3}{4} = \frac{2x-1}{3}$, then $x =$
10. Write the following statement as an algebraic expression: "5 more than one-half of a number x is equal to 8"
11. Write the following statement as an algebraic expression: "The difference of one-third of a number x and 4 is equal to 3"
12. Two years ago, James was x inches tall. Last year James grew $x - 50$ inches. This year James grew one-half as many inches as he did last year. How tall, in inches, is James now?
13. A certain number x is 8 more than a second number, and 5 less than a third number. In terms of x , which of the following expressions represents the second number?
14. In the xy -plane, point A has coordinate (10, 8) and point B has coordinate (0, 0). What is the equation of the line that contains points A and B?
15. In the xy -plane, point A has coordinate (6, 4) and point B has coordinate (1, 2). What is the equation of the line that contains points A and B?
16. If $y = -2(x - 5) + 3$, what is the value of y when $x = -2$
17. If $y = 2x^2 - 5x + 4$, what is the value of y when $x = -3$
18. If $x = \frac{1}{2}$ and $y = -5$, what is $yx - x$?
19. Simplify the following: $-| -(-3)^2 |$
20. On her way to school, it took Mary 30 minutes to travel 12 miles. On the way home from school, it took Mary 15 minutes to drive the same route. Mary's average speed on her way to school is how many miles per hour less than her average speed on her way home?

21. How many solutions does the following system of equations have? If the system has a solution, what is it?

$$2x - y = 6$$

$$2x + y = 6$$

22. In the solution for the following system of equations, what is the value of x ?

$$3x + 2y = 3$$

$$2x - y = 6$$

23. Juan invested \$10,000 in two mutual funds. In the first year, one fund earned 5% while the second fund earned 7%. If Juan earned a total of \$680 from these two funds in the first year, how much did Juan invest in the fund that earned 5%?

24. If $0 < x < 1$, then of the following, which is greatest?

$$(-x^2)$$

$$x^3$$

$$(-x)^4$$

$$x^5$$

25. The inequality $|x| < 2$ is true for each of the following values of x EXCEPT:

$$-\frac{3}{2}$$

$$\frac{5}{4}$$

$$-\frac{5}{2}$$

$$\frac{7}{4}$$

26. Solve the given inequality: $-3x < 12$

27. All of the following are equivalent EXCEPT:

$$x < -5$$

$$2x < -10$$

$$x - 5 < -10$$

$$x - 5 < 10$$

28. Solve the given inequality: $5 - 2x > 4 + 3x$

29. Simplify: $\frac{-48x^2}{36x}$

30. Simplify: $\frac{a^3b^4 + ab^5 - a^2b^3}{ab^2}$

31. Simplify: $\frac{20x^3y^4}{30x^5y^2}$

32. Simplify: $x^{1/2}x^{3/2}$

33. Simplify: $(x^{1/4})^5$

34. What is the square of $x + y$?

35. What is the square of $x - y$?

36. If $(x - 4)(x + 4) = ax^2 + bx + c$, where a , b , and c are constants, what is the value of c ?

37. If $(x - 3)(x - 3) = ax^2 + bx + c$, where a , b , and c are constants, what is $a + b + c$?

38. Multiply: $(2x - 5y)^2$

39. The base of a triangle is x feet and the height of the triangle is $\frac{1}{3}x + 8$ feet. What is the area, in square feet, of the triangle?

40. John wants to create a circular garden with a radius of $x - 3$ feet. What is the area, in square feet, of the garden in terms of x ?
(note: the area of a circle of radius r is πr^2)

41. What is the area of the top of a square box that has a volume of 27 cubic feet?

42. For which of the following equations is 0 a solution?

I. $x(x - 1) = 0$

II. $(x + 1)(x - 1) = 0$

III. $x^2(x^2 - 1) = 0$

43. Factor the following: $24x - 8$

44. Factor the following:

$$6x^3y^2 - 2x^2y^2 + 4x^2y^3$$

45. Factor the following: $3x^2 - 27y^2$

46. Factor the following: $\frac{x^2}{25} - 16$

47. Factor the following: $x^2 + 8x - 20$

48. Factor the following: $x^2 - 10x + 16$

49. Factor the following: $x^2 - 6x - 40$

50. Factor the following: $x^2 - xy - 2y^2$

51. Solve the equation: $x^2 - x = 2$

52. Solve the equation: $x^2 + 3 = 4x$

53. Simplify the following: $\frac{3(x - 2)}{x^2 - 4}$

54. Simplify the following: $\frac{x^2 - 5x + 6}{2x^2 + 4x - 16}$

55. Simplify: $\left(\frac{x^3}{18y}\right)\left(\frac{6y}{4x^2}\right)$

56. Simplify: $\frac{x}{4x - 16} \div \frac{x^2 - 2x}{x - 4}$

57. If $x \neq 2$ and $x \neq 0$, then

$$\frac{2}{3x^2} - \frac{3}{x^2 - 2x} =$$

58. If $x \neq 1$ and $x \neq 2$, then

$$\frac{3}{(x - 2)} + \frac{2}{(x - 1)} =$$

59. Simplify $\frac{1 + \frac{2}{x}}{\frac{3}{x^2}}$

60. If $\frac{1}{x} - b = \frac{1}{4}$, then $x =$

61. Simplify the following ($x \geq 0$): $\sqrt{25x^4}$

62. Simplify the following: $\sqrt[3]{125x^9}$

ANSWERS

1. $\frac{3}{2}x - 12$

2. $-3x^2 + 15x$

3. $\frac{x}{12}$

4. $-(2 - 2.5) = -(-0.5) = 0.5$

5. $x = \frac{3}{4}$

6. $x = \frac{21}{5}$

7. $x = \frac{72}{19}$

8. $x = -\frac{39}{4}$

9. $x = \frac{13}{5}$

10. $\frac{1}{2}x + 5 = 8$

11. $\frac{1}{3}x - 4 = 3$

12. $\frac{5}{2}x - 75$

13. $x + 8$

14. $y = \frac{4}{5}x$

15. $y = \frac{2}{5}x + \frac{8}{5}$

16. 17

17. 37

18. $-\frac{7}{2}$

19. -9

20. 24 mph

21. One solution; (3, 0)

22. $x = \frac{15}{7}$

23. \$1000 at 5%; \$9000 at 7%

24. x^5

25. $-\frac{5}{2}$

26. $x > -4$

27. $x - 5 < 10$

28. $x < \frac{1}{5}$

29. $-\frac{4}{3}x$

30. $a^2b^2 + b^3 - ab$

31. $\frac{2y^2}{3x^2}$

32. x^2

33. $x^{5/4}$

34. $x^2 + 2xy + y^2$

35. $x^2 + 2xy + y^2$

36. -16

37. 4

38. $4x^2 + 20xy + 25y^2$

39. $\frac{1}{6}x^2 + 4x$

40. $\pi(x^2 - 6x + 9)$

41. 9 square feet

42. I and III

43. $8(3x - 1)$

44. $2x^2y^2(3x + 2y - 1)$

45. $3(x - 3y)(x + 3y)$

46. $\left(\frac{1}{5}x - 4\right)\left(\frac{1}{5}x + 4\right)$

47. $(x + 10)(x - 2)$

48. $(x - 8)(x - 2)$

49. $(x - 10)(x + 4)$

50. $(x - 2y)(x + y)$

51. $x = 2$ and $x = -1$

52. $x = 3$ and $x = 1$

53. $\frac{3}{x + 2}$

54. $\frac{x - 3}{2(x + 4)}$

55. $\frac{x}{12}$

56. $\frac{1}{4(x - 2)}$

57. $\frac{-7x - 4}{3x^2(x - 2)}$

58. $\frac{5x - 7}{(x - 2)(x - 1)}$

59. $\frac{x(x + 2)}{3}$

60. $\frac{4}{1 + 4b}$

61. $5x^2$

62. $5x^3$