

Questions

1. Solve for x:  $3x + 5 = 20$
2. Solve for x:  $7x - 14 = 0$
3. Solve for x:  $4x + 9 = 1$
4. Solve for x:  $5 - 2x = 13$
5. Solve for x:  $\frac{6x}{3} = 10$
6. Solve for x:  $(\frac{1}{2})x + 4 = 10$
7. Solve for x:  $3(x - 2) = 12$
8. Solve for x:  $2(4x + 1) = 18$
9. Solve for x:  $0.5x + 2.5 = 5$
10. Solve for x:  $-3x + 7 = 1$
11. Solve for x:  $8x - 3 = 5x + 9$
12. Solve for x:  $2x + 3 = x + 11$
13. Solve for x:  $4x - 2 = 2x + 10$
14. Solve for x:  $9x + 5 = -2x + 24$
15. Solve for x:  $3(x + 4) = 2x + 15$
16. A pen costs p dollars. Three pens and two notebooks cost \$11. If one notebook costs \$2, write and solve an equation to find p.
17. A car travels at  $60 \frac{km}{h}$ . How many hours h to go 150 km? (Write and solve an equation.)
18. A rectangle has length  $(2x + 1)$  cm and width  $(x - 1)$  cm. If the perimeter is 26 cm, find x.
19. A phone plan costs \$a per month. If 4 months cost \$68, find a.
20. You buy t identical items for \$45. If each item costs \$5, write and solve for t.
21. Solve for x:  $(\frac{x}{3}) - 2 = 4$
22. Solve for x:  $(5x + 2)/2 = 11$
23. Solve for x:  $(\frac{2}{3})x + 1 = 5$
24. Solve for x:  $7 - (\frac{x}{4}) = 3$
25. Solve for x:  $12 = 3(x + 1)$
26. Find k such that the equation  $2x + k = 10$  has solution  $x = 3$ .
27. Find k such that  $(k)x - 4 = 8$  has solution  $x = 3$ .
28. Find k such that the equation  $kx = 15$  has solution  $x = 5$ .
29. Find k so that the equation  $4x + k = 4x + 7$  has how many solutions? (Determine k and number of solutions.)
30. For what value of k does  $5x + 3 = 5x + k$  have infinitely many, none, or exactly one solution? (State k for each case.)



## Math Worksheet for 9th Grade

### Linear equations with unknown coefficients

Name: \_\_\_\_\_

Due Date: \_\_\_\_\_

Teacher: \_\_\_\_\_

Parent Sign: \_\_\_\_\_

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31. Determine the number of solutions of the equation  $3x + 2 = 3x + 2$ .
32. Determine the number of solutions of the equation  $3x + 2 = 3x + 5$ .
33. Determine the number of solutions of the equation  $0x = 0$ .
34. Determine the number of solutions of the equation  $0x = 7$ .
35. Determine the number of solutions of the equation  $(k-1)x = 7$  when  $k = 1$  and when  $k \neq 1$ .
36. Solve for  $x$  and  $k$  if  $2x + k = 10$  and  $x = 4$ .
37. Solve for  $x$  and  $k$  if  $kx + 2 = 14$  and  $x = 2$ .
38. Solve for  $k$  such that  $x = 0$  is a solution of  $kx + 5 = 5$ .
39. Find  $k$  so that  $x = -1$  solves  $kx + 3 = 0$ .
40. Find  $k$  so that  $x = 2$  solves  $7x + k = 21$ .
41. Determine whether the linear equation  $4x + 6 = 4x + 6$  has zero, one, or infinitely many solutions.
42. Determine whether the linear equation  $2x + 1 = 2x - 1$  has zero, one, or infinitely many solutions.
43. For which value(s) of  $m$  does  $m x + 2 = m x + 2$  hold for all  $x$ ?
44. For which value(s) of  $m$  does  $m x + 3 = m x + 5$  have a solution?
45. Determine the number of solutions for  $x$  in the equation  $(2m)x = 10$  when  $m = 0$  and when  $m = 5$ .
46. Solve for  $x$ :  $10 - 3x = 4$
47. Solve for  $x$ :  $14 = 2(3x + 1)$
48. Solve for  $x$ :  $(x - 5) + 2x = 10$
49. Solve for  $x$ :  $6x + 4 = 2x + 12$
50. Solve for  $x$ :  $11x - 22 = 0$