

Find the intersection of each of the following pairs of lines using Substitution:

1. $x = \frac{4}{3}y + 2$, $x = 2y + -5$
2. $x = -y + 8$, $x + (-2)y = 14$
3. $x - 2y = -8$, $x = y + -2$
4. $-x - 5y = -14$, $x = -7y + \frac{1}{2}$
5. $-6x + (-5)y = -9$, $y = -x + \frac{-11}{3}$
6. $y = \frac{-1}{2}x + \frac{1}{2}$, $5x + 8y = 4$
7. $x + 7y = -1$, $x = -5y + -1$
8. $y = \frac{2}{5}x + \frac{6}{5}$, $2x + (-5)y = -5$
9. $-x - 2y = -11$, $x = \frac{-8}{3}y + \frac{4}{3}$
10. $x = -3y + \frac{-7}{2}$, $y = \frac{-1}{5}x + \frac{-9}{5}$
11. $y = \frac{-2}{5}x + \frac{1}{5}$, $-6x - 16y = -1$
12. $-3x + 6y = 12$, $x = \frac{3}{2}y + -4$
13. $y = 5x + -3$, $x = y + 14$
14. $y = \frac{-3}{4}x + \frac{3}{4}$, $x = \frac{-6}{5}y + -3$
15. $x = \frac{-7}{3}y + \frac{2}{3}$, $y = \frac{-6}{13}x + \frac{-5}{13}$
16. $y = \frac{7}{4}x + \frac{1}{2}$, $y = \frac{3}{2}x + \frac{-9}{2}$
17. $x = y + -3$, $7x - 5y = -8$
18. $-7x - 6y = 8$, $x = \frac{-5}{6}y + \frac{-3}{2}$
19. $x = \frac{7}{6}y + \frac{5}{6}$, $2x + (-2)y = -7$
20. $y = -8x$, $x = \frac{-1}{8}y + \frac{-3}{5}$
21. $x = \frac{1}{3}y + \frac{-5}{6}$, $-4x - (-2)y = -1$
22. $-x - (-y) = 12$, $y = \frac{2}{5}x + \frac{-3}{5}$
23. $y = 3x + 5$, $2x - 2y = -7$
24. $y = \frac{10}{3}x + -1$, $y = \frac{10}{3}x + -1$
25. $x + 5y = -4$, $x = \frac{-23}{4}y + \frac{-5}{4}$
26. $y = \frac{1}{4}x + \frac{7}{4}$, $y = \frac{2}{3}x + -1$
27. $-2x - 3y = -1$, $x = -3y + -10$
28. $y = \frac{-1}{3}x + \frac{7}{3}$, $x = \frac{-26}{7}y + \frac{-11}{7}$
29. $-x + (-6)y = 15$, $y = \frac{-4}{19}x + \frac{-13}{19}$
30. $x + y = -1$, $y = -4x + 13$
31. $x = \frac{-2}{3}y + -4$, $x - (-2)y = 11$
32. $x = -6y + 8$, $4x + 19y = -12$
33. $y = 2x + -8$, $10x - 5y = 40$
34. $4x + 2y = 0$, $y = -2x$
35. $y = \frac{10}{7}x + \frac{-5}{7}$, $x = \frac{7}{10}y + \frac{19}{50}$
36. $y = -x + 10$, $x = \frac{-5}{7}y + \frac{10}{7}$
37. $y = \frac{-5}{4}x + \frac{-1}{4}$, $x = \frac{-3}{5}y + \frac{7}{5}$
38. $y = \frac{-5}{4}x + \frac{15}{4}$, $-7x - 5y = -14$
39. $x = \frac{1}{3}y + \frac{2}{3}$, $x = \frac{1}{2}y + 4$
40. $x = \frac{-7}{6}y + \frac{4}{3}$, $-7x + (-8)y = 8$
41. $x = \frac{7}{5}y + 3$, $y = \frac{3}{4}x + \frac{-3}{8}$
42. $y = \frac{5}{2}x + \frac{3}{2}$, $y = \frac{5}{2}x + \frac{-1}{3}$
43. $x = 5y + -12$, $6x - 35y = -5$
44. $y = \frac{1}{2}x + \frac{-7}{2}$, $x = \frac{7}{2}y + -5$
45. $6x - 5y = 9$, $x = y + 11$
46. $y = \frac{1}{4}x + \frac{7}{2}$, $y = \frac{4}{15}x + \frac{-1}{5}$
47. $x = -y + 9$, $x = \frac{1}{4}y + \frac{-3}{4}$
48. $x = 2y + 10$, $-5x - (-5)y = 7$
49. $5x + 3y = 11$, $y = \frac{-5}{4}x + \frac{-1}{2}$
50. $x = y + -10$, $-6x + 2y = -11$
51. $-9x + 5y = 7$, $x = \frac{5}{9}y + \frac{-4}{9}$
52. $9x + 7y = -8$, $x = \frac{-7}{9}y + \frac{-8}{9}$
53. $-2x - y = 1$, $y = \frac{-4}{3}x + 2$
54. $y = -x + 2$, $x = -y + 12$

55. $y = \frac{7}{5}x + \frac{-9}{5}, x = y + -14$

56. $x = \frac{-1}{2}y + 3, x = \frac{-3}{7}y + -1$

57. $x = -7y + 3, 7x + 47y = -12$

58. $y = \frac{4}{3}x + \frac{-11}{3}, y = \frac{1}{2}x + -3$

59. $x = y + 2, y = \frac{7}{6}x + \frac{-5}{3}$

60. $x - y = 6, x = \frac{3}{2}y + \frac{-7}{4}$

61. $y = -x + -3, 3x - (-3)y = -9$

62. $-x - (-5)y = -6, y = \frac{2}{11}x + \frac{-3}{11}$

63. $6x - 7y = 12, y = \frac{7}{9}x + \frac{4}{9}$

64. $-3x + 3y = -8, y = \frac{6}{7}x + \frac{-10}{7}$

65. $y = \frac{-3}{7}x + 2, x = \frac{-16}{7}y + 1$

66. $-2x + (-6)y = -10, x = \frac{-11}{4}y + -3$

67. $-x - 6y = -5, y = \frac{-7}{44}x + \frac{3}{22}$

68. $x = \frac{2}{7}y + \frac{8}{7}, -6x + 2y = -1$

69. $-5x - 3y = 15, x = \frac{-5}{7}y + \frac{4}{7}$

70. $x = -7y + 9, 7x - (-47)y = -15$

71. $4x + (-3)y = 10, x = \frac{1}{2}y + \frac{7}{2}$

72. $-4x - (-y) = 13, x = y + -13$

73. $y = \frac{1}{2}x + \frac{-1}{2}, x = \frac{18}{7}y + \frac{13}{7}$

74. $-6x - (-5)y = 14, y = x + \frac{-5}{3}$

75. $x + (-5)y = -8, y = \frac{7}{38}x + \frac{-4}{19}$

76. $x = -7y + 11, x = \frac{-11}{2}y + -2$

77. $-2x - 4y = 4, x = \frac{-7}{3}y + \frac{11}{3}$

78. $x = -4y + 2, x = -4y + \frac{7}{5}$

79. $y = \frac{1}{7}x + \frac{9}{7}, -6x - (-44)y = -10$

80. $x = 6y + -12, -7x - (-46)y = -2$

81. $y = 2x, -8x - (-4)y = 0$

82. $y = \frac{-1}{5}x + \frac{13}{5}, x = -7y + -14$

83. $x - (-2)y = -3, x = -6y + 13$

84. $2x - (-3)y = -7, x = \frac{-13}{7}y + \frac{8}{7}$

85. $y = 4x + -3, -20x + 5y = -2$

86. $y = \frac{5}{2}x + 3, y = 4x + -11$

87. $y = -x + -13, -x - 5y = -15$

88. $-5x + (-3)y = 11, y = \frac{-3}{2}x + \frac{-11}{4}$

89. $-6x + 7y = -5, y = \frac{2}{3}x + \frac{-8}{3}$

90. $-6x + 4y = 5, x = \frac{1}{2}y + \frac{3}{2}$

91. $x = \frac{-5}{2}y + \frac{13}{2}, x = \frac{-15}{7}y + \frac{-3}{7}$

92. $x + (-7)y = -10, x = \frac{45}{7}y + \frac{-3}{7}$

93. $x = -y + -5, y = \frac{-3}{4}x + -2$

94. $y = \frac{-1}{7}x + -2, -6x + (-40)y = 4$

95. $y = 2x + 3, x = -y + 7$

96. $x = y + 14, -2x + y = -12$

97. $y = \frac{-2}{5}x + 3, x = \frac{-9}{4}y + \frac{-1}{2}$

98. $y = \frac{-5}{6}x + \frac{-5}{3}, 4x - (-4)y = -6$

99. $3x + (-2)y = -4, y = \frac{5}{4}x + \frac{-5}{2}$

100. $5x - 6y = -2, y = \frac{5}{6}x + \frac{1}{3}$

Solutions:

1. $x = 16, y = \frac{21}{2}$
2. $x = 10, y = -2$
3. $x = 4, y = 6$
4. $x = \frac{191}{4}, y = \frac{-27}{4}$
5. $x = \frac{82}{3}, y = -31$
6. $x = 0, y = \frac{1}{2}$
7. $x = -1, y = 0$
8. None. They are parallel.
9. $x = 40, y = \frac{-29}{2}$
10. $x = \frac{19}{4}, y = \frac{-11}{4}$
11. $x = \frac{11}{2}, y = -2$
12. $x = -4, y = 0$
13. $x = \frac{-11}{4}, y = \frac{-67}{4}$
14. $x = -39, y = 30$
15. $x = \frac{-61}{3}, y = 9$
16. $x = -20, y = \frac{-69}{2}$
17. $x = \frac{7}{2}, y = \frac{13}{2}$
18. $x = -14, y = 15$
19. $x = \frac{-59}{2}, y = -26$
20. None. They are parallel.
21. $x = -3, y = \frac{-13}{2}$
22. $x = -21, y = -9$
23. $x = \frac{-3}{4}, y = \frac{11}{4}$
24. The Entire Line
25. $x = \frac{-67}{3}, y = \frac{11}{3}$
26. $x = \frac{33}{5}, y = \frac{17}{5}$
27. $x = 11, y = -7$
28. $x = 43, y = -12$
29. $x = \frac{207}{5}, y = \frac{-47}{5}$
30. $x = \frac{14}{3}, y = \frac{-17}{3}$
31. $x = \frac{-23}{2}, y = \frac{45}{4}$
32. $x = \frac{-224}{5}, y = \frac{44}{5}$
33. The Entire Line
34. The Entire Line
35. None. They are parallel.
36. $x = -20, y = 30$
37. $x = \frac{31}{5}, y = -8$
38. $x = \frac{-19}{3}, y = \frac{35}{3}$
39. $x = -6, y = -20$
40. $x = -120, y = 104$
41. $x = \frac{-99}{2}, y = \frac{-75}{2}$
42. None. They are parallel.
43. $x = -79, y = \frac{-67}{5}$
44. $x = 23, y = 8$
45. $x = -46, y = -57$
46. $x = 222, y = 59$
47. $x = \frac{6}{5}, y = \frac{39}{5}$
48. $x = \frac{-64}{5}, y = \frac{-57}{5}$
49. $x = 10, y = -13$
50. $x = \frac{31}{4}, y = \frac{71}{4}$
51. None. They are parallel.
52. The Entire Line
53. $x = \frac{-9}{2}, y = 8$
54. None. They are parallel.
55. $x = \frac{79}{2}, y = \frac{107}{2}$
56. $x = -25, y = 56$
57. $x = \frac{-225}{2}, y = \frac{33}{2}$
58. $x = \frac{4}{5}, y = \frac{-13}{5}$
59. $x = -2, y = -4$
60. $x = \frac{43}{2}, y = \frac{31}{2}$
61. The Entire Line
62. $x = 51, y = 9$
63. $x = \frac{136}{5}, y = \frac{108}{5}$
64. $x = \frac{26}{3}, y = 6$
65. $x = -175, y = 77$
66. $x = -91, y = 32$
67. $x = 92, y = \frac{-29}{2}$
68. $x = 7, y = \frac{41}{2}$
69. $x = \frac{-87}{4}, y = \frac{125}{4}$
70. $x = -264, y = 39$
71. $x = \frac{11}{2}, y = 4$
72. $x = 0, y = 13$
73. $x = -2, y = \frac{-3}{2}$
74. $x = \frac{-67}{3}, y = -24$
75. $x = \frac{-344}{3}, y = \frac{-64}{3}$
76. $x = \frac{-149}{3}, y = \frac{26}{3}$
77. $x = -36, y = 17$
78. None. They are parallel.
79. $x = -233, y = -32$
80. $x = -141, y = \frac{-43}{2}$
81. The Entire Line
82. $x = \frac{161}{2}, y = \frac{-27}{2}$
83. $x = -11, y = 4$
84. $x = -23, y = 13$
85. None. They are parallel.
86. $x = \frac{28}{3}, y = \frac{79}{3}$
87. $x = -20, y = 7$
88. $x = \frac{-11}{2}, y = \frac{11}{2}$
89. $x = \frac{-41}{4}, y = \frac{-19}{2}$
90. $x = \frac{17}{2}, y = 14$
91. $x = -42, y = \frac{97}{5}$
92. $x = \frac{429}{4}, y = \frac{67}{4}$
93. $x = -12, y = 7$
94. $x = 266, y = -40$
95. $x = \frac{4}{3}, y = \frac{17}{3}$
96. $x = -2, y = -16$
97. $x = \frac{-145}{2}, y = 32$
98. $x = 1, y = \frac{-5}{2}$
99. $x = -18, y = -25$
100. The Entire Line