

Algebra - Simultaneous Equations - Answers

Two variables, one rational answer - Ex 3

The following equations in two variables should be solved algebraically, giving the results as whole or normalised rational numbers. Calculators should not be used in doing the necessary arithmetic.

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|-----|--|------------------------|-----|-------------------------------------|------------------------|
| 1. | $2p + 3q = 11$
$3p + 6q = 22$ | $p = 0$
$q = 11/3$ | 11. | $7m - 6n = 0$
$21m - 17n = 2$ | $m = 12/7$
$n = 2$ |
| 2. | $7x - 6y = 11$
$3x - 3y = 4$ | $x = 3$
$y = 5/3$ | 12. | $12x + 5y = 4$
$4x + 3y = 0$ | $x = 3/4$
$y = -1$ |
| 3. | $3p - 7q + 6 = 0$
$12p - q - 3 = 0$ | $p = 1/3$
$q = 1$ | 13. | $5x - 8y = 1$
$3x - 2y = 2$ | $x = 1$
$y = 1/2$ |
| 4. | $4x - 2y = -2$
$4x + 3y = -12$ | $x = -3/2$
$y = -2$ | 14. | $9a + 13b = -2$
$30a + 52b = -2$ | $a = -1$
$b = 7/13$ |
| 5. | $7x - 3y = 2$
$21x + 3y = 6$ | $x = 2/7$
$y = 0$ | 15. | $17x - 19y = 0$
$19x + 19y = 36$ | $x = 1$
$y = 17/19$ |
| 6. | $3x - 2y = 3$
$2y - x + 7 = 0$ | $x = -2$
$y = -9/2$ | 16. | $11p - 13q = 19$
$p + 26q = 8$ | $p = 2$
$q = 3/13$ |
| 7. | $6x + 7y = 9$
$21x - 7y = 0$ | $x = 1/3$
$y = 1$ | 17. | $4a - 6b = 6$
$a + 3b = 3$ | $a = 2$
$b = 1/3$ |
| 8. | $3a - 18b = 3$
$2a + 12b = 6$ | $a = 2$
$b = 1/6$ | 18. | $4a + 6b = 6$
$a - 3b = 0$ | $a = 1$
$b = 1/3$ |
| 9. | $11p - 4q = 11$
$9p - 8q + 30 = 0$ | $p = 4$
$q = 33/4$ | 19. | $19x - 72y = 10$
$8x + 8y = 9$ | $x = 1$
$y = 1/8$ |
| 10. | $5y - 3z = -3$
$5y + 3z = 9$ | $y = 3/5$
$z = 2$ | 20. | $23x - 72y = 6$
$7x - 8y = 14$ | $x = 3$
$y = 7/8$ |