

Solve each pair of equations by addition or subtraction.

1.  $2x + 3y = 11$   
 $3x - 4y = -9$  (1, 3)

2.  $6x - 5y = 43$   
 $3x + 2y = -1$

3.  $3x - y = 9$   
 $x + 2y = -4$

4.  $3x + 7y = -33$   
 $5x - 2y = -14$

5.  $5x - 2y = -1$   
 $3x + 4y = -11$

6.  $2x - 7y = 24$   
 $5x + 2y = -18$

7.  $2x - 3y = -11$   
 $4x + 7y = 43$

8.  $7x + 3y = -6$   
 $4x - 5y = -37$

9.  $x + 4y = 1$   
 $2x - 5y = 15$

~~10.~~  $3x + 2y = 10$   
 $3x + 2y = 7$

~~11.~~  $4x - 5y = -1$   
 $4x - 5y = 0$

12.  $4x - 7y = -37$   
 $3x + 5y = 3$

13.  $3x - 2y = 3$   
 $4x + 3y = -13$

14.  $3x - 4y = -29$   
 $2x + 5y = 19$

15.  $6x + 5y = -8$   
 $2x - 7y = 32$

~~16.~~  $2x - 5y = 9$   
 $4x - 10y = 18$

17.  $5x - 4y = 32$   
 $3x + 2y = 6$

~~18.~~  $7x - 4y = 13$   
 $14x - 8y = 10$

19.  $7x + 9y = 50$   
 $3x - 7y = -22$

20.  $2x - 6y = -22$   
 $x + 4y = 17$

~~21.~~  $6x - 5y = 9$   
 $12x - 10y = 11$

22.  $3x - 5y = -14$   
 $2x + 7y = 1$

23.  $4x - 3y = -41$   
 $5x + 2y = -11$

24.  $3x - 2y = 4$   
 $4x + 5y = -10$

Solve each pair of equations by substitution.

1.  $x - y = 7$   
 $x + y = 9$  (8, 1)

2.  $3x - y = 5$   
 $x + 3y = 5$

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

4.  $2x - 3y = 3$   
 $x + 4y = 7$

5.  $x - y = 6$   
 $2x - 3y = 20$

6.  $2x - y = 8$   
 $3x - y = 6$

7.  $x + 3y = 7$   
 $4x - 5y = -6$

8.  $4x - 3y = 5$   
 $3x + 6y = 12$

9.  $4x + y = -19$   
 $7x - y = 8$

10.  $5x + 6y = 10$   
 $2x - y = 4$

11.  $3x - y = 5$   
 $4x - y = 3$

12.  $3x + 4y = -20$   
 $x - 5y = 6$

13.  $6x - 5y = 4$   
 $y - 4x = 2$

14.  $7x + 3y = 20$   
 $x + y = 4$

15.  $5x + 2y = -30$   
 $3x - y = 4$

16.  $3x + 6y = 16$   
 $x + 3y = 5$

17.  $3x - 7y = 22$   
 $5x - y = 2$

18.  $2x + 3y = 73$   
 $x - 5y = 4$

19.  $2x - y = 5$   
 $3x + 7y = -1$

20.  $3x - 4y = 7$   
 $x - 3y = 2$

21.  $4x - 12y = 1$   
 $4x - 7y = 6$

22.  $5x + 3y = 15$   
 $2x - 3y = -1$

23.  $2x - 5y = 2$   
 $6x + 5y = 2$

24.  $3x - 2y = 0$   
 $5x + 4y = 11$

**Page 58 Equations in Two Variables**

See student graphs.

- $m = -1, b = 2$
- $m = -1, b = 4$
- $m = 1, b = -3$
- $m = 1, b = -5$
- $m = -3, b = 4$
- $m = -2, b = 3$
- $m = 3/2, b = -1$
- $m = 2/3, b = -2$
- $m = -5/2, b = 5$
- $m = 3/4, b = -3$
- $m = 1/4, b = -2$
- $m = 2/5, b = -2$
- $m = -3/2, b = 5$
- $m = -2, b = -4$
- $m = -2/3, b = -2$
- $m = 1/4, b = 2$
- $m = 5/2, b = -2$
- $m = -4/3, b = 2$

**Page 59 Solving Equations with Two Variables**

See student graphs.

- (1, 2)
- (0, 1)
- (2, 1)
- (0, -1)
- (3, -2)
- (-1, 2)
- (0, -2)
- (-1, 1)
- (2, 2)
- $\phi$
- (-1, -2)
- (3, 3)
- (1, 3)
- $\{(x, y) : y = 2x + 1\}$
- $\phi$
- (-2, 2)
- (-1, 2)
- (2, -1)
- $\phi$
- (1, 4)
- $\{(x, y) : 2x + 3y = 8\}$
- (2, 1)
- $\phi$
- (-3, -1)

**Page 60 Solving Equations with Two Variables**

See student graphs.

- (0, 2)
- (-1, 0)
- (3, 2)
- (2, -1)
- (2, 3)
- (-1, -2)
- $\phi$
- (-1, 2)
- $\{(x, y) : 2x - y = -2\}$
- (2, 2)
- $\phi$
- (-2, -1)
- (2, 4)
- $\phi$
- (-3, -2)
- (2, 4)
- $\{(x, y) : 4x - 3y = -5\}$
- (2, 3)
- (3, 3)
- $\phi$
- (-1, 2)
- (-2, -3)
- (-2, 3)
- (1, 3)

**Page 61 Solving Equations with Two Variables**

- (4, 1)
- (-1, 3)
- (8, 3)
- (7, 2)
- (12, 9)
- (1, -5)
- (3, 4)
- (2, 2)
- (1, 8)
- (-4, 3)
- (6, 3)
- (4, -5)
- (-3, -4)
- (6, -5)
- (8, -10)
- (1/2, -3)
- (-2, -1/2)
- (1/3, 3)
- (2, -1)
- (2, -3)
- (1/2, 0)
- (4, -1/2)
- (1/4, 1/5)
- (3/4, 1/4)

**Page 62 Solving Equations with Two Variables**

- (8, 1)
- (2, 1)
- (10, 12)
- (3, 1)
- (-2, -8)
- (-2, -12)
- (1, 2)
- (2, 1)
- (-1, -15)
- (2, 0)
- (-2, -11)
- (-4, -2)
- (-1, -2)
- (2, 2)
- (-2, -10)
- (6, -1/3)
- (-1/4, -13/4)
- (29, 5)
- (2, -1)
- (13/5, 1/5)
- (13/4, 1)
- (2, 5/3)
- (1/2, -1/5)
- (1, 3/2)

**Page 63 Solving Equations with Two Variables**

- (9, 1)
- (10, 3)
- (1, 2)
- (-1, -2)
- $\{(x, y) : 3x + y = 5\}$
- (3, -4)
- (-2, 1)
- (2, 5)
- (-1, 1)
- $\{(x, y) : 2x - 3y = 4\}$
- $\phi$
- (-3, 1)
- (2, -3)
- (-4, -2)
- (-4, 2)
- $\phi$
- (5, -3)
- (1, 5)
- (-3, 7)
- (3, -2)
- $\{(x, y) : 3x + y = 13\}$
- (1, -6)
- (-3, -1)
- (-3, 4)

**Page 64 Solving Equations with Two Variables**

- (1, 3)
- (3, -5)
- (2, -3)
- (-4, -3)
- (-1, -2)
- (-2, -4)
- (2, 5)
- (-3, 5)
- (5, -1)
- $\phi$
- $\phi$
- (-4, 3)
- (-1, -3)
- (-3, 5)
- (2, -4)
- $\{(x, y) : 2x - 5y = 9\}$
- (4, -3)
- $\phi$
- (2, 4)
- (1, 4)
- $\phi$
- (-3, 1)
- (-5, 7)
- (0, -2)

**Page 65 Solving Equations with Two Variables**

- (2, -1)
- (-2, -4)
- $\{(x, y) : 7x - 4y = 15\}$
- (5, -3)
- (-3, 1)
- (-6, 1)
- (-2, -2)
- $\phi$
- (0, 5)
- (1, 4)
- (3, 4)
- (-3, 0)
- $\{(x, y) : 2x - 6y = 1\}$
- $\{(x, y) : 2x - 5y = 3\}$
- $\phi$
- (-1/2, 3/7)
- (2/3, 1/2)
- $\phi$
- (-4, 3)
- (2, 7)
- (2/5, -1)
- $\phi$
- $\phi$
- (1/3, 1/2)

**Page 66 Solving Equations with Two Variables**

- (2, -1)
- (-3, 2)
- (3, -3)
- $\phi$
- $\{(x, y) : 4x + 3y = 7\}$
- (1, 4)
- (-5, 0)
- $\{(x, y) : 6x - 4y = -6\}$
- $\phi$
- (2, -1)
- (-4, 1)
- (-1, -1)
- (5, 2)
- $\phi$
- $\{(x, y) : 3x - 2y = 2\}$
- $\{(x, y) : 4x - y = -2\}$
- $\phi$
- (0, -2)
- (1/2, 1/3)
- (2, 2/5)
- (4, -1/2)
- (2, -1)
- (6, 3)
- (1/2, -1/3)

**Page 67 Number Problems**

- 3 and 15
- 3 and 23
- 10 and 24
- 11 and 17
- 6 and 36
- 29 and 51
- 10 and 25
- 6 and 14
- 4 and 7
- 4 and 10

**Page 68 Number Problems**

- 14 and 22
- 12 and 15
- 26 and 31
- 46 and 62
- 11 and 27
- 39 and 86
- 43 and 25
- 44 and 21
- 1/8 and 27/8
- 12 and 1

**Page 69 Perimeter Problems**

- 5 cm  $\times$  11 cm
- 13 cm  $\times$  15 cm
- 6 m  $\times$  15 m
- 10 cm  $\times$  21 cm
- 12 cm  $\times$  26 cm
- 8 m  $\times$  25 m
- 12 m  $\times$  30 m
- 8 m  $\times$  18 m
- 8 cm  $\times$  21 cm
- 12 cm  $\times$  20 cm

**Page 70 Perimeter Problems**

- 17 cm  $\times$  5 cm
- 23 cm  $\times$  14 cm
- 49 m  $\times$  12 m
- 41 m  $\times$  8 m
- 30 cm  $\times$  24 cm
- 7 m  $\times$  5 m
- 17 m  $\times$  1.5 m
- 7 cm  $\times$  4 cm
- 11 m  $\times$  4 m
- 6 cm  $\times$  4 cm

**Page 71 Age Problems**

- 24 yr and 5 yr
- 14 yr and 43 yr
- 20 yr and 60 yr
- 10 yr and 40 yr
- 5 yr and 9 yr
- 8 yr and 3 yr
- 9 yr and 19 yr
- 7 yr and 15 yr
- 11 yr and 20 yr
- 10 yr and 18 yr

**Page 72 Age Problems**

- 10 yr and 39 yr
- 12 yr and 35 yr
- 21 yr and 50 yr
- 12 yr and 42 yr
- 10 yr and 12 yr
- 5 yr and 16 yr
- 15 yr and 21 yr
- 5 yr and 19 yr
- 20 yr and 26 yr
- 12 yr and 16 yr

**Page 73 Digit Problems**

- 56
- 32
- 45
- 81
- 64
- 15
- 72
- 15
- 26
- 94

**Page 74 Digit Problems**

- 35
- 47
- 18
- 64
- 23
- 53
- 86
- 49
- 29
- 74

**Page 75 Money Problems**

- \$1.15 and \$2.45
- \$2.25 and \$3.85
- \$0.26 and \$0.32
- \$0.79 and \$0.69
- \$49.98 and \$24.49
- \$59.95 and \$16.49
- \$16.85 and \$8.95
- \$25.49 and \$10.98
- \$4.65 and \$5.35
- \$6.50 and \$4.35