# CHAPTER 11

# Equations



## UNIT 1: Solving equations by inspection

QUESTION **1** Solve the following one-step equations by inspection and then check by substitution.

**a** $x + 2 = 5$

**b** $a + 3 = 7$

**c** $m - 4 = 8$

**d** $b + 1 = 7$

**e** $a + 2 = 10$

**f** $n + 5 = 12$

**g** $x - 2 = 4$

**h** $x + 3 = 9$

**i** $y + 8 = 14$

**j** $p - 3 = 7$

**k** $t - 2 = 8$

**l** $a - 9 = 3$

**m** $y - 2 = -7$

**n** $x - 4 = -6$

**o** $8 + x = 12$

QUESTION **2** Solve the following equations by inspection and then check by substitution.

**a** $m + 1 = 9$

**b** $x + 2 = 12$

**c** $3 + y = 15$

**d** $9 + n = -3$

**e** $x - 4 = 7$

**f** $x - 2 = 16$

**g** $m + 5 = 9$

**h** $y - 3 = 18$

**i** $a + 6 = 8$

**j** $m - 3 = 7$

**k** $n - 6 = 10$

**l** $a - 4 = 11$

**m** $y - 5 = -3$

**n** $t - 2 = -4$

**o** $15 + a = 21$

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Pages 88–108

## UNIT 2: One-step equations (addition and subtraction)

QUESTION **1** Solve the following one-step equations.

**a** $x + 5 = 9$

**b** $a + 7 = 15$

**c** $m - 3 = 4$

**d** $b + 3 = 11$

**e** $a + 4 = 10$

**f** $n + 9 = 12$

**g** $x - 3 = 12$

**h** $x + 5 = 16$

**i** $y + 8 = 20$

**j** $p - 2 = 10$

**k** $t - 4 = 1$

**l** $a - 9 = 9$

**m** $y - 2 = -3$

**n** $x - 5 = -6$

**o** $5 + x = 20$

QUESTION **2** Solve the following equations. Check your solutions by substitution.

**a** $m + 7 = 2$

**b** $x + 3 = 1$

**c** $9 + y = 14$

**d** $12 + n = 18$

**e** $x - 10 = 12$

**f** $x - 1 = 8$

**g** $m + 15 = 30$

**h** $y - 12 = 27$

**i** $a + 5 = 13$

**j** $m - 4 = 11$

**k** $n - 12 = 19$

**l** $a - 7 = 1$

**m** $y - 5 = -5$

**n** $t - 6 = -3$

**o** $10 + a = 14$

## UNIT 3: One-step equations (multiplication and division)

QUESTION **1** Solve the following one-step equations.

**a** $4a = 16$

**b** $\frac{x}{2} = 3$

**c** $5y = 15$

**d** $\frac{x}{3} = 7$

**e** $\frac{y}{5} = 6$

**f** $8x = -32$

**g** $6m = -18$

**h** $2x = 6$

**i** $\frac{t}{4} = -5$

**j** $2p = -8$

**k** $\frac{y}{5} = -4$

**l** $7t = 28$

**m** $\frac{a}{2} = 9$

**n** $3a = 24$

**o** $\frac{x}{7} = -3$

QUESTION **2** Solve the following equations. Check your solutions by substitution.

**a** $\frac{x}{6} = 5$

**b** $\frac{x}{6} = -2$

**c** $\frac{x}{7} = 6$

**d** $\frac{a}{3} = -20$

**e** $\frac{a}{9} = -2$

**f** $\frac{b}{8} = 9$

**g** $\frac{m}{3} = 12$

**h** $\frac{x}{3} = 9$

**i** $\frac{y}{2} = -14$

**j** $3a = 18$

**k** $-2b = -10$

**l** $-3x = -12$

**m** $5x = 35$

**n** $8x = 48$

**o** $7x = 49$

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Pages 88–108

## UNIT 4: Two-step equations

**QUESTION 1** Solve the following two-step equations.

**a** $2x + 1 = 3$

**b** $18 = 3x - 6$

**c** $10 = 5y - 15$

**d** $\frac{5m}{3} = 10$

**e** $\frac{x-3}{4} = 5$

**f** $2a + 9 = 19$

**g** $\frac{x}{2} - 1 = 7$

**h** $3x + 5 = 11$

**i** $\frac{a-2}{7} = 3$

**j** $8x - 7 = 33$

**k** $5x + 3 = 28$

**l** $6t - 3 = 39$

**m** $7y - 5 = 9$

**n** $\frac{m}{3} - 4 = 6$

**o** $2k + 3 = 21$

**QUESTION 2** Solve the following equations. Verify your solutions by substitution.

**a** $3x - 3 = 9$

**b** $\frac{m}{2} + 6 = 9$

**c** $\frac{x-5}{7} = 4$

**d** $\frac{x-2}{6} = 8$

**e** $5x - 9 = 26$

**f** $\frac{5m}{6} = 10$

**g** $10 - 2m = 0$

**h** $3y - 9 = 21$

**i** $7y + 4 = -3$

**j** $2x + 8 = 14$

**k** $8x - 7 = 17$

**l** $9x - 7 = 56$

**m** $3a - 2.3 = 7$

**n** $6a - 1\frac{1}{2} = 4\frac{1}{2}$

**o** $8p + 0.3 = 2.7$

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Pages 88–108

## UNIT 5: Three-step equations

QUESTION **1** Solve the following three-step equations.

**a** $4x + 9 = 3x - 12$

**b** $2x - 7 = x - 3$

**c** $6t - 10 = 4t + 12$

**d** $11m - 6 = 7m + 14$

**e** $9m - 3 = 7m + 9$

**f** $4a - 3 = 3a + 9$

**g** $10y - 6 = 5y + 19$

**h** $6x - 4 = 2x + 16$

**i** $7y - 3 = 4y + 15$

**j** $5x - 1 = 6x - 9$

**k** $3a + 5 = 21 - a$

**l** $12p - 3 = 7p + 32$

QUESTION **2** Solve the following equations. Check your solutions by substitution.

**a** $6x - 20 = 4x + 48$

**b** $2x - 6 = 3 - x$

**c** $6x - 2 = 3x - 6$

**d** $7y - 14 = 5y + 20$

**e** $2x - 14 = x - 12$

**f** $5x + 17 = 3 - 4x$

**g** $3m - 2 = 2m + 7$

**h** $6x - 21 = 2x - 2$

**i** $3y + 1 = 2y + 7$

**j** $6m + 7 = 7m + 10$

**k** $2x + 3 = x - 9$

**l** $4y - 3 = 2y + 11$