National 5 Mathematics

Equations & Inequations - Solutions

Marks are indicated in brackets after each question number

2015 Paper 1 Question 2, (3)

$11 - 2(1 + 3x) < 39$

$11 - 2 - 6x < 39$

$-6x < 30$

$x > \dfrac{30}{-6}$

$x > -5$

2016 Paper 1 Question 8, (3)

$\dfrac{2x}{3} - \dfrac{5}{6} = 2x$

Multiplying by 6 gives

$4x - 5 = 12x$

$8x = -5$

$x = -\dfrac{8}{5}$

2017 Paper 1 Question 8, (3)

$19 + x > 15 + 3(x - 2)$

$19 + x > 15 + 3x - 6$

$10 > 2x$

$5 > x$

$x < 5$

2018 Paper 2 Question 4, (3)

$3x < 6(x - 1) - 12$

$3x < 6x - 6 - 12$

$3x < 6x - 18$

$18 < 3x$

$$6 < x$$

$$x > 6$$

2019 Paper 1 Question 14, (3)

$$\frac{x}{2} - 1 = \frac{3 - x}{5}$$

Multiply through the equation by 10 to give

$$\frac{10x}{2} - 10 = \frac{30 - 10x}{5}$$

$$5x - 10 = 6 - 2x$$

$$7x = 16$$

$$x = \frac{16}{7}$$

2023 Paper 1 Question 14, (3)

$$\frac{x + 1}{3} - 2 > \frac{3x}{5}$$

Multiply by 3 to give

$$x + 1 - 6 > \frac{9x}{5}$$

$$x - 5 > \frac{9x}{5}$$

Multiply by 5 to give

$$5x - 25 > 9x$$

$$-25 > 4x$$

$$\frac{-25}{4} > x$$

$$x < \frac{-25}{4}$$

2024 Paper 2 Question 4, (3)

$$5(x - 2) + 4 < 7x + 8$$

$$5x - 10 + 4 < 7x + 8$$

$$5x - 6 < 7x + 8$$

$$-14 < 2x$$

$$x > -7$$

2025 Paper 2 Question 13, (3)

$$\frac{5x+1}{2} = \frac{4x}{3} + 1$$

$$\frac{15x+3}{6} = \frac{8x}{6} + 1$$

$$15x + 3 = 8x + 6$$

$$7x = 3$$

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