



Spring School Equations & Inequalities

1. Solve for x in each of the following:

a. $x^2 - 2x - 35 = 0$

b. $x^2 - 16 \geq 0$

c. $9 \cdot 2^{x-1} = 2 \cdot 3^x$

2. Given $f(x) = x^2 - 5x + c$

Determine the value of c if it is given that the solutions of $f(x) = 0$ are $\frac{5 \pm \sqrt{41}}{2}$

3. Solve for x and y if: $3^{x-10} = 3^{3x}$ and $y^2 + x = 20$

4. Solve for x in each of the following:

a. $(2x - 1)(x + 4) = 0$

b. $3x^2 - x = 5$ (Leave your answer correct to TWO decimal places)

c. $x^2 + 7x - 8 < 0$

5. Given $4y - x = 4$ and $xy = 8$

a. Solve for x and y simultaneously

b. The graph of $4y - x = 4$ is reflected across the line having equation $y = x$. What is the equation of the reflected line?

6. The solutions of a quadratic equation are given by $x = \frac{-2 \pm \sqrt{2p+5}}{7}$

For which values of p will this equation have:

a. Two equal solutions

b. No real solutions

7. Solve the following equation by substitution:

$$x^2 + 3x - \frac{56}{x(x+3)} = 26$$

8. For which values of k will the roots of $6x^2 + 6 = 4kx$ be real and equal?

9. Solve for x : $4x^2 - 4x + 1 \leq 0$

10. Solve for x : $\frac{2}{x+3} \leq \frac{1}{x-3}$; $x \neq \pm 3$