

ALGEBRAIC PROCESSES PRACTICE QUESTIONS:

Quadratic Equations:

1. Factorize $x^2 - 16b^2$
2. Solve $a^2 - 3ab - 10b^2 = 0$
3. Solve $3m^2 - 10m + 3 = 0$
4. If $(x-a)$ is a factor of $bx - ax + x^2 - ab$, what is the other factor?
5. Solve $2x^2 - x - 5 = 0$

Simultaneous Linear and Quadratic Equations:

1. Solve: $4x + 3y = 14$
 $5x + 7y = 11$
2. Solve: $x^2 + 2y = 9$
 $y - x = 3$
3. Solve: $y = 2x - 6$
 $y = \frac{1}{2}x + 6$
4. Solve: $x^2 - y = 14$
 $2y - 4 = 12x$
5. Solve: $x + 2y + 10 = 0$
 $3x - 5y - 14 = 0$

Linear Inequalities:

1. Solve: $x + 2 < 4$
2. Solve the inequality $3 - 2x \geq 15$
3. Solve $\frac{3}{2}(1 - x) > \frac{1}{4} - x$
4. Solve $-1 < 2x + 3 < 6$
5. $x - 1 < 2x + 2 < 3x + 1$

Gradients of Straight Lines and Curves:

1. Find the gradient of the straight line that passes through the points (2, 3) and (-10, 6).
2. Find the gradient of the line passes through (-8, -1) and (2, -6).
3. Draw the lines $y = -2$ and $x = -3$ on a single graph.
4. Draw the graph of $y = 2x + 6$ and find its gradient.
5. Find the gradient of $x^2 - 4x + 4$ and find the gradient at the point (1, 1)

Algebraic Fractions:

1. Simplify: $(3x^2 - 3y^2) / (12x - 12y)$
2. Simplify: $(5a^2 - 5b^2) / (25a^2 + 50ab + 25b^2)$
3. Simplify: $(a - b)(1/a - 1/b)$
4. Simplify: $(a^2 - b^2)(1 + a/b)$
5. $(x - y) : (1/x + 1/y)$