

Pre A Level Maths Homework 3

1. For the co-ordinates A(-1,3) and B(1, 6) work out the following:

- a) The length of line AB
- b) The mid point of AB
- c) The gradient of line AB
- d) The equation of the line through AB
- e) A line perpendicular to AB that goes through (0,4)

2. Solve the following equations:

- a) $15 - 3x + 7(x - 2) = 3(x - 4)$
- b) $\frac{5}{2x+1} = \frac{4}{x+2}$

3. Solve the following quadratics by factorising

- a) $x^2 - 5x - 24 = 0$
- b) $x^2 + 12x + 20 = 0$
- c) $4x^2 - 25 = 0$

4. Completing the square

- a) Write the expression $x^2 - 6x + 30$ in the form $(x + a)^2 + b$
- b) Hence or otherwise solve $x^2 - 6x + 30 = 0$

5. Simultaneous Equations

- a) Solve the following by elimination:
 $2x - 4y = 8$
 $7x + 6y = 18$
- b) Solve the following by substitution:
 $y = x + 2$
 $xy = 15$

6. Simplify

- a) $\frac{5}{x} + \frac{4}{x+2}$
- b) $\frac{5x}{x+1} - \frac{1}{x+2}$