

Linear Equation and quadratic Expressions

1. Write the equation (in point slope form) of the line parallel to the line passing through the points $(-1, \frac{3}{4})$ and $(-4, 2)$ and passing through the point of coordinate $(1, 1)$.
2. Find the equation (in slope intercept form) of line perpendicular to the line $-\sqrt{2}x - 5 = 2x - 1$ and passing through the point $(-3, 3)$.
3. Let P_1 be a point in the plane such that P_1 is at 3 units away from the origin of the cartesian plane. Let P_2 be a point in the plane such that P_2 is at a distance of 5 units from the origin. Find the equation (in standard form) of the line passing through P_1 and P_2 .
4. Solve the following linear equation

$$2(x - 1) + \frac{1}{4}(x + 4) = (x - 1) - 3$$

5. Complete the square for the followings

$$-4x^2 - 2x$$

6. Complete the square for the following expression

$$\sqrt{3}x^2 - \sqrt{7}x$$

7. Find the vertex form for the following quadratic function

$$f(x) = 7x^2 - 2x + 1$$

8. Find the vertex form for the following quadratic equation

$$g(x) = \sqrt{3}x^2 - \sqrt{7}x + \sqrt{2}$$

9. Find the equation of the axis of symmetry of the quadratic

$$f(x) = \frac{1}{3}x^2 - \sqrt{2}x - 1$$