

AP Precalculus - M3Y & M3Z

Algebra Homework 1

1. Solve the following equations. Show your work:

(i) $9x - 2 = 16$

(vi) $4x = 5 - x^2$

(ii) $7x + 5 = \frac{x}{3} - 3$

(vii) $x^2 - 28x + 93 = -x^2 - 5$

(iii) $\frac{5x}{9} + 7 = -3 - \frac{8x}{7}$

(viii) $10x - x^3 = x^3 + 8x^2$

(iv) $\frac{1}{x} - 2 = \frac{7}{3}$

(ix) $3x^2 - 9x + 5 = 4x^2 - 2x$

(v) $x^2 - 8x + 15 = 0$

(x) $3x + \frac{3}{x} = 15x - 7 + \frac{4}{x}$

2. Find the domains of the following functions and write them as intervals or unions of intervals. Show your work:

(i) $f(x) = \frac{3}{x-9}$

(vi) $q(r) = \frac{\sqrt{7-12r}}{-r^2+13r-42}$

(ii) $g(x) = \sqrt{x-5}$

(iii) $h(x) = \sqrt{5(3-x) - 2 - 3x}$

(vii) $W(x) = \frac{2x-5}{x^4-7x^2+10}$

(iv) $p(t) = \frac{6t-17}{3t^2+9t+6}$

(v) $q(y) = \frac{2y^3+4y^2-6y+2}{\sqrt{7y+2}}$

(viii) $a(z) = \frac{\sqrt{15-(5x-5)}}{\sqrt{x-9-(9-x)}}$