4.1 Solving Polynomial Equations

1. Solve the following polynomial equations.

a) $x^3 + 4x^2 + x - 6 = 0$

b) $x^3 - 2x^2 - 4x + 8 = 0$

c) $x^4 - 6x^2 + 8x - 3 = 0$

d) $-x^4 + 5x^2 - 6 = 0$

e) $2x^3 + x^2 - x + 3 = 0$

2. Find the point(s) of intersection between the graphs of the polynomial functions $f(x) = x^4 + 4$ and $g(x) = 9x^2 - 4$. Make a diagram.

3. Solve the following polynomial equations.

a) $x^2(3-x)=4$

b) $x^4=x^2+6$

c) $\frac{3x+1}{x^2+1}=\frac{x-1}{2}$

d) $x+\frac{1}{x}-\frac{2}{x^2}=0$

e) $x^3(x+2)=2(x^2-1)+3x$

f) $x(x+1)(x^4-1)=6(x+1)^2(x^2+1)$

4. Show that the polynomial function $P(x)=x^4-x^2+1$ does not have any x-intercept.

