Polynomials : Worksheet -9

1. Find the value of a and b so that $8x^4 + 14x^3 - 2x^2 + ax + b$ is exactly divisible by $4x^2 + 3x - 2$

2. If $\alpha \text{ and } \beta$ are the zeroes of the polynomial $6y^2 - 7y + 2$, find a quadratic polynomial whose zeroes are $\dfrac{1}{\alpha} \text{ and } \dfrac{1}{\beta}$.

3. Check by division whether $x^2 - 2$ is a factor of $x^4 + x^3 + x^2 - 2x - 3$.

4. If the polynomial $f(x) = 3x^4 + 3x^3 - 11x^2 - 5x + 10$ is completely divisible by $3x^2 - 5$, find all its zeroes.