

ALGEBRA 2
PROBLEM SET #19

DUE DATE: NOVEMBER 28, 2023

Question 1. Let $P(x) = 5x^4 - 3x^3 + 2x + 6 - 14x^2$ and $Q(x) = 2x^3 - 20 + 3x$.

- (a) Find $P(x) + Q(x)$.
- (b) Find $P(x) - Q(x)$.

Question 2. Let $f(x) = 7x + 3x^2 + \frac{5}{2}$ and $g(x) = 3x^2 + 7x - \frac{5}{2}$

- (a) Find $f(x) + g(x)$
- (b) Find $f(x) - g(x)$
- (c) Find $3f(x)$ and $2g(x)$.
- (d) Find $3f(x) - 2g(x)$.
- (e) What is the degree of $3f(x) - 2g(x)$?
- (f) Find $f(x) \cdot g(x)$.
- (g) What is the degree of $f(x) \cdot g(x)$?

Question 3. Let $f(x) = -3x^2(x + 3)(x - 5)^2(x - 7)^{2023}$

- (a) Find the x -intercepts of $f(x)$, with multiplicity:
- (b) Find the degree of $f(x)$ by adding the multiplicities
- (c) Sketch a graph of $f(x)$

