Exercise 2015-9ED-00003(2)

NO CALCULATOR MAY BE USED!

(1) Determine the sum of the following expressions and write the answer in ascending order of x:

$-2x + x^7 - 3 + 5x^2 + 12x^4$ and $4x^5 - 4x + 6x^7 - 18x^4 + 2$

(2) Subtract $(4mn^3 + 3mn - 5m^2n + 3)$ from $(7mn - m^2n + 4mn^3)$ and use your answer to answer the following questions:

(a) How many terms does the expression consist of.

(b) Determine the degree of the expression in m.

(c) Write down the constant term.

(d) Determine the value of the expression of $m = \frac{-3}{2}$ and $n = 4$.

(3) Simplify:

(a) $-2xy^3(2x^2y^2 - 3xy)$

(b) $(y - 3)(y + 3)$

(c) $4p^1(p - 3) + (2 + p)3$

(d) $\frac{4}{5}k^4(20k^4 - 1)$

(e) $(a - 3b)(2a + 3b)$

(f) $[(m - 4)(m + 4)]^2$

(g) $(t - 2)(3t + 1 - t^2)$

(h) $(x - 5)^2 - (x + 1)^2$

(4) Prove that: $[(x - 2)^2 - (x + 2)^2]^2 = 64x^2$