

**Math 05, Homework 6 on Sections 5.3, 5.4, 5.5, 5.6, 6.1**  
**due Wed, Nov 4.**

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Write all your working out and answers on a separate sheet. It is very important that you show clearly any work you had to do to get the answer. These first ten questions are 1 point each and **the answers are on page 2.**

- (1) Add the polynomials:  $x^3 + 4x - 5$  and  $2x^2 + 3x + 4$
  - (2) Subtract  $6y^2 - 4y$  from  $-3y^4 - 9y^2 + 10y$ .
  - (3) Simplify completely:  $(9x^2 - 17x + 8) - (-2x^2 - 3x + 4)$
  - (4) Multiply out:  $(2x - 5)^2$
  - (5) Simplify completely:  $(2x - 4)(x^2 + 3x - 3)$
  - (6) Divide:  $\frac{6x^{15} - 8x^9 - 4x^4}{-2x^4}$
  - (7) Factor out the gcd:  $14x^3 - 21x$
  - (8) Factor out the gcd:  $10x^2y + 5xy - xy^2$
  - (9) Factor by grouping:  $x^3 + 3x^2 + 5x + 15$
  - (10) Factor by grouping:  $4ax + 3ay - 12bx - 9by$
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These next eight questions are 3 points each. Show clearly all your working out and reasoning.

- (11) Add the polynomials:  $2x^2 - x - 5$  and  $6x^2 + 8x - 1$
- (12) Simplify completely:  $(-4x^2 - 15x + 3) - (9x^2 - 6x + 5)$
- (13) Multiply out:  $(3y - 4)^2$
- (14) Simplify completely:  $(-3x + 5)(x^2 - 4x - 5)$
- (15) Divide:  $\frac{-4x^{17} + 6x^8 - 8x^3}{-2x^3}$
- (16) Factor out the gcd:  $100x^4 - 50x^3 + 45x^2$
- (17) Factor by grouping:  $x^3 - 7x^2 + 4x - 28$
- (18) Factor by grouping:  $3cw + 6cz - 2dw - 4dz$

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**Answers to questions (1)-(10):**

(1)  $x^3 + 2x^2 + 7x - 1$

(2)  $-3y^4 - 15y^2 + 14y$

(3)  $11x^2 - 14x + 4$

(4)  $4x^2 - 20x + 25$

(5)  $2x^3 + 2x^2 - 18x + 12$

(6)  $-3x^{11} + 4x^5 + 2$

(7)  $7x(2x^2 - 3)$

(8)  $xy(10x + 5 - y)$

(9)  $(x^2 + 5)(x + 3)$

(10)  $(a - 3b)(4x + 3y)$