Xavier University of Louisiana

Study Guide for the Xavier Mathematics Placement Test

3. Operations on and factoring of polynomials

Multiple Choice Practice Problems

1 The degree of the polynomial $8x^3 - 5x + 7x^4 + 5$ is

a. 4

b. 3

c. 1

d. 8

e. 7

2 Find $6y^3 + y^4 - 9y^5 - (y^4 - 3y^3 + 9)$

a. $9y^3 + 2y^4 - 9y^5 - 9$

b. $3y^3 - 9y^5 - 9$

c. $9y^3 - y^5 + 9$

d. $9y^3 - 9y^5 - 9$

e. $3y^3 + 2y^4 - 9y^5 - 9$

3 Find $(5a - 1)(3 - 2a)$

a. $15a - 10a^2 - 3$

b. $17a - 10a^2 - 3$

c. $-10a^2 - 3$

d. $7a - 3$

e. $2a - 10a^2 - 3$

4 Find $(2a - 1)^2$

a. $4a^2 + 1$

b. $4a + 4a^2 + 1$

c. $4a^2 - 4a + 1$

d. $4a^2 - 1$

e. $4a^2 - 2a + 1$

5 Find the quotient and the remainder of $(x^2 + 3x + 5) \div (x - 3)$

a. Quotient: $x + 6$, Remainder: 23

b. Quotient: $x + 6$, Remainder: 13

c. Quotient: $x + 6$, Remainder: -13

d. Quotient: $x + 6$, Remainder: -23

e. Quotient: x, Remainder: 5

6 Factor $x^2 - 4$, if possible.

a. $(x - 2)^2$

b. $(x - 2)(x + 2)$

c. Cannot be factored

d. $x(x - 4)$

e. $(x - 2)(x - 2)$

7 Factor $4x + x^2 + 3$, if possible.

a. $(x + 1)(x + 3)$

b. $x(x + 7)$

c. $(x - 1)(x - 3)$

d. Cannot be factored

e. $(x - 1)(x + 3)$

8 Factor $6x - a + ax - 6$, if possible

a. Cannot be factored.

b. $(a - 6)(x - 1)$

c. $(x + 1)(6 - a)$

d. $(1 - a)(6x + 1)$

e. $(a + 6)(x - 1)$

9 Factor $y^4 + 2xy^4 + x^2y^4$, if possible.

a. $y^4(x + 1)^2$

b. $y^4(x^2 + 1)$

c. $(xy^2 + 1)^2$

d. $y^4(x - 1)^2$

e. $(x + y^2)^2$