

MIDTERM 2 Answers

Math 110 (Doherty)
November 17, 2006

Name _____

1. (3 pts each) Simplify each expression. There should be no negative exponents in your answers.

(a) 36

(b) 8^{2a+1}

(c) $\frac{b^2c^2}{3^2a^4}$

2. (4 pts each) Simplify each expression. There should be no negative exponents in your answers. You do not have to multiply out terms like 2^5 .

(a) $-2x^3y^4$

(b) $\frac{n^4}{3m^5}$

3. (3 pts each) Perform the indicated operation.

(a) $4x^2 - y^2 + 4y - 4$

(b) $p^{6r} + q^3$

4. (4 pts each) Factor each polynomial completely. If a polynomial is prime, say so.

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

(b) $(3x^y - 1)(9x^{2y} + 3x^y + 1)$

5. (5 pts each) Solve by factoring. State the solution set.

(a) $\{0, \frac{1}{3}, -\frac{3}{4}\}$

(b) $\{1, -1, -5\}$

6. (5 pts) What is the domain of $\frac{3x - 2}{x^3 - x^2}$? State your answer in set notation and in interval notation.

Set notation: $\{x \mid x \neq 0, 1\}$

7. (4 pts each) Perform the indicated operations, and express your answer in its simplest form (i.e., all fractions should be reduced).

(a) $\frac{2x^2}{x-2}$

(b) $\frac{2}{x-y}$

(c) $\frac{z-2}{(z+1)^2}$

8. (4 pts each) Simplify the following complex fractions. You can leave common denominators in factored form (i.e., don't bother multiplying out denominators).

(a) $\frac{7x+1}{-2x-8}$

(b) $\frac{a^4-b^3}{a^4b+ab^3}$