Math120 College Algebra – Spring 2008 – DLA – Test 1

Name_____

Each of the 19 questions is worth 5 points plus 1 points for each of 5 homework problems for a total of 100

Evaluate the expression for x = –2, y = 3, and a = –4.

1) $\dfrac{\dfrac{12}{y} - \dfrac{a}{2}}{\dfrac{x}{2} + \dfrac{15}{y}}$

Evaluate the expression.

2) Let x = –3, y = –11. Evaluate $|5y - 10x|$.

Write the expression without absolute value bars.

3) $|y - 2|$, if $y < 2$

Perform the indicated operations.

4) $(-6x^6 + 7x^8 + 9 - 6x^7) - (8 + 3x^7 + 9x^8 - 4x^6)$

Find the product.

5) $(-4a + 9b)(6a + 7b)$

Divide.

6) $\dfrac{16y^4 + 12y^3 + 3y - 1}{4y^2 + 1}$

Factor by grouping.

7) $15a^3 - 20a^2b + 9ab^2 - 12b^3$

Factor the trinomial completely.

8) $-12x^2 - 10x + 12$

Factor.

9) $(r + s)^2 - 4$

Factor the polynomial completely.

10) $b^6 + 1$

Write the expression in lowest terms.

11) $\dfrac{3z^2 - 13z - 30}{4z^2 - 21z - 18}$

Perform the indicated operations.

12) $\dfrac{2ab}{a^2 - b^2} - \dfrac{b}{a - b} + \dfrac{6}{2}$

Simplify.

13) $\dfrac{\dfrac{6}{x - h} + \dfrac{6}{x}}{2x - h}$

Perform the indicated operations. Write the result using only positive exponents. Assume all variables represent nonzero real numbers.

14) $\dfrac{30a^{-6}b^{3}}{5a^{-12}b^{6}}$

Perform the indicated operations. Write the answer using only positive exponents. Assume all variables represent positive real numbers.

15) $\dfrac{(x^{2/3})^{2}}{(x^{3})^{5/3}}$

Perform all indicated operations and write your answer with positive integer exponents.

16) $\dfrac{m^{-1} - n^{-1}}{m^{-1} + n^{-1}} \cdot \dfrac{m + n}{m - n}$

Simplify the expression. Assume all variables represent positive real numbers.

17) $\sqrt[3]{-27a^8b^5}$

Rationalize the denominator. Assume that all variables represent positive real numbers.

18) $\dfrac{5\sqrt{11x}}{\sqrt{x^3}}$

Rationalize the denominator. Assume that all variables represent positive real numbers and that the denominator is not zero.

19) $\dfrac{\sqrt{7}}{7\sqrt{6}-\sqrt{7}}$