

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  $a = -4$ .**

$$1) \frac{\frac{9}{y} - \frac{a}{2}}{\frac{x}{2} + \frac{6}{y}}$$

**Evaluate the expression.**

2) Let  $x = 3$ ,  $y = 24$ . Evaluate  $|8y - 3x|$ .

**Write the expression without absolute value bars.**

3)  $|y - 1|$ , if  $y < 1$

**Perform the indicated operations.**

$$4) (-2x^6 + 5x^8 - 8 + 3x^7) - (-4 + 6x^7 + 2x^8 + 4x^6)$$

**Find the product.**

5)  $(-4a - 7b)(-8a - 9b)$

**Divide.**

6) 
$$\frac{36y^4 + 24y^3 + 4y - 1}{6y^2 + 1}$$

**Factor by grouping.**

7)  $12a^3 + 16a^2b + 15ab^2 + 20b^3$

**Factor the trinomial completely.**

8)  $-24x^2 - 20x + 24$

**Factor.**

9)  $(t + u)^2 - 16$

**Factor the polynomial completely.**

10)  $z^6 + 1$

Write the expression in lowest terms.

$$11) \frac{3y^2 - 13y + 12}{2y^2 - 9y + 9}$$

Perform the indicated operations.

$$12) \frac{2ab}{a^2 - b^2} - \frac{b}{a - b} + \frac{8}{2}$$

Simplify.

$$13) \frac{\frac{3}{x - h} + \frac{3}{x}}{2x - h}$$

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

$$14) \frac{56a^{-3}b^4}{7a^{-11}b^8}$$

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

$$15) \frac{(x^{4/3})^2}{(x^3)^{8/3}}$$

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

$$16) \frac{(mn)^{-1}}{m^{-2} + n^{-2}}$$

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

17)  $\sqrt[3]{-64a^8b^5}$

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

18)  $\frac{6\sqrt{29x}}{\sqrt{x^3}}$

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

19)  $\frac{\sqrt{2}}{2\sqrt{5} - \sqrt{2}}$