MAC 1105 Section 1A27 Name: Solutions

Quiz 1B (Modules 1,2)

Be sure to show your work for full credit!

1. List the elements of S that belong in the following sets.

$$S = \{3^0, \sqrt{81}, \sqrt{5}, 0, 3.2846, 4.1\overline{33}, -3, \pi\}$$

Note: $3^0 = 1$, $\sqrt{81} = 9$

Whole Numbers = { 3^0, $\sqrt{81}$, 0 }

Rational Numbers = { 3^0, $\sqrt{81}$, 0, 3.2846, $4.1\overline{33}$, -3 }

Irrational Numbers = { $\sqrt{5}$, π }

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2. Identify the property illustrated in the statement. Assume the variable represents a real number.

a) $16 + (2y + 6z) = (2y + 6z) + 16$ Commutative Property

b) $16 + (2y + 6z) = (16 + 2y) + 6z$ Associative Property

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3. Factor the polynomial. Hint: use difference of squares! $x^2 - y^2 = (x-y)(x+y)$

$$16x^6 - 25y^2$$

$$= 4^2(x^3)^2 - 5^2y^2$$

$$= (4x^3)^2 - (5y)^2$$

$$= (4x^3 - 5y)(4x^3 + 5y)$$

Continue onto the back.

4. Factor the polynomial by grouping.

$$6x^2 - 11x + 3$$

match signs
Both factors have negative signs

$6 \cdot 3 = 18$	Factors of 18	Sum to -11
	$-1, -18$	$\times$
	$-2, -9$	$\checkmark$
	$-3, -6$	$\times$

$$6x^2 - 11x + 3$$
$$= (6x^2 - 2x) - 9x + 3$$
$$= (6x^2 - 2x) + (-9x + 3)$$
$$= 2x(3x - 1) - 3(3x - 1)$$
$$= (2x - 3)(3x - 1)$$