MAC 1105 Section 1A27

Quiz 1A (Modules 1,2)

Be sure to show your work for full credit!

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

$$S = \{6^0, \sqrt{49}, \sqrt{7}, 0, 5.7612, 3.1\bar{1}2, -5, \pi\}$$

Whole Numbers = \{ 6^0, \sqrt{49}, 0 \} \quad (6^0 = 1)

Rational Numbers = \{ \sqrt{49}, 0, 5.7612, 3.1\bar{1}2 \}

Irrational Numbers = \{ \sqrt{7}, \pi \}

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

a) $16 + (2y + 6z) = (16 + 2y) + 6z$ \underline{Associative} Property

b) $16 + (2y + 6z) = (2y + 6z) + 16$ \underline{Commutative} Property

3. Factor the polynomial.

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

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

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

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

Continue onto the back.
4. Factor the polynomial by grouping.

\[
6x^2 - 7x + 2
\]

Both factors' signs match. Both factors are negative.

<table>
<thead>
<tr>
<th>2: l0=12</th>
<th>Factors of 12</th>
<th>Sum to -7</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1, -12</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-2, -6</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-3, -4</td>
<td>O</td>
<td></td>
</tr>
</tbody>
</table>

\[
6x^2 - 7x + 2
= 6x^2 - 3x - 4x + 2
= 3x(2x-1) - 2(2x-1)
= (3x-2)(2x-1)
\]