Math 200 - Quiz 6

March 9, 2011

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (1 point) Convert 374_{eight} to base ten.

$3\times8^2 + 7\times8^1 + 4\times8^0$

$= 3\times64 + 7\times8 + 4\times1 = 192 + 56 + 4 = \boxed{252}$

2. (2 points) Convert 1234 to base nine.

$9^0 = 1,\ 9^1 = 9,\ 9^2 = 81,\ 9^3 = 729$

$9^3 = 729$) 1234 | 1
- 729
$9^2 = 81$) 505 | 6
- 486
$9^1 = 9$) 19 | 2
- 18
$9^0 = 1$) 1 | 1

$\boxed{1621_{\text{NINE}}}$

3. (1 point) Use the set model (with actual sets) to illustrate $2 + 3 = 5$.

$A = \{a, b\}$, $n(A) = 2$

$B = \{1, 2, 3\}$, $n(B) = 3$

$A \cup B = \{a, b, 1, 2, 3\}$

$2 + 3 = n(A \cup B) = 5$

4. (1 point) Name the property that justifies each equality.

(a) $3(x + 5) + 2 = 3(5 + x) + 2$

ORDER CHANGED ← COMMUTATIVE PROPERTY

(b) $(a + 5) + (x - 8) = (x - 8) + (a + 5)$

COMMUTATIVE PROPERTY → ORDER CHANGED