

**Math 200 - Quiz 3**  
September 12, 2012

Name key Score \_\_\_\_\_

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

1. (2 points) For each arithmetic sequence below, find a formula for the  $n$ th term.

(a) 11, 20, 29, 38, 47, 56, ...

9

$$N^{\text{TH}} \text{ TERM} = 9N + 2$$

(b) 5, 13, 21, 29, 37, 45, ...

8

$$N^{\text{TH}} \text{ TERM} = 8N - 3$$

2. (2 points) Consider the sum:  $2 + 8 + 14 + \dots + 644$

(a) How many terms does the sum have?

2, 8, 14, ...

6

$$N^{\text{TH}} \text{ TERM} = 6N - 4$$

$$644 = 6N - 4$$

$$648 = 6N \Rightarrow$$

$$N = 108$$

(b) Compute the sum.

$$\begin{array}{r} 2 + 8 + \dots + 644 \\ 644 + \dots + 2 \\ \hline \downarrow \quad \downarrow \quad \downarrow \\ 646 \quad 646 \quad 646 \end{array}$$

$$\frac{108(646)}{2} = 34,884$$

3. (1 point) The  $n$ th term of the following sequence is given by  $n^2 + 2n$ . Find the 8th term.

3, 8, 15, 24, 35, ...

$$8^{\text{TH}} \text{ TERM} = 8^2 + 2(8)$$

$$= 64 + 16 = 80$$