

Solution College Algebra Quiz 5b

Name _____ Score _____ /10

Please Print Clearly

Write complete sentences.

1. Consider the sequence whose rule is given by $f(n) = \frac{1}{25}n + \frac{7}{25}$

a) What is the domain of the sequence f?

The domain of a sequence is the set of natural numbers.

b) Calculate the first term of the sequence f.

$$f(1) = \frac{1}{25}(1) + \frac{7}{25} = \frac{8}{25}$$

c) Calculate the 500th term of the sequence f.

$$f(500) = \frac{1}{25}(500) + \frac{7}{25} = \frac{507}{25}$$

d) Write the formula for the sum of the first n terms (nth partial sum) of a sequence.

$$S_n = \frac{n}{2}(a_1 + a_n)$$

e) What is the sum of the first 500 terms of the sequence f.

$$S_n = \frac{n}{2}(a_1 + a_n)$$

$$S_{500} = \frac{500}{2}(f(1) + f(500)) = \frac{500}{2}\left(\frac{8}{25} + \frac{507}{25}\right) = \overbrace{\frac{10}{250}}^{10}\left(\frac{515}{25}\right) = 5150$$