

**Quiz 12 Key — MA16020 — February 26, 2018**

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Min	Mean	Max
1	5.8	10

1. (6 points) Determine whether each of these geometric series converges or diverges.

(a)  $\sum_{n=1}^{\infty} \left(\frac{3}{2}\right)^n$       (b)  $\sum_{n=0}^{\infty} \frac{(-1)^n}{1000}$       (c)  $\sum_{n=2}^{\infty} \frac{7^n}{3^{(2n)}}$

(a) diverges      (b) diverges      (c) converges

2. Let  $S = 6 - 2 + \frac{2}{3} - \frac{2}{9} + \dots$

- (a) (3 points) Write  $S$  in summation notation, starting with  $n = 0$ .  
(b) (1 points) Find the value of  $S$ .

(a)  $\sum_{n=0}^{\infty} 6 \left(-\frac{1}{3}\right)^n$

(b)  $9/2$