## Convergence of Series I - Worksheet

1. Find the *n*th partial sum for the series  $3+2-2+2-2+\ldots$ 

Why?

- 2. Does the series  $3 + 2 2 + 2 2 + \dots$  converge? Why?
- 7. Find the *m*th partial sum for the series  $\sum_{n=0}^{\infty} \frac{1}{n^2 1}.$
- 3. Does the series  $6 + 3 + \frac{3}{2} + \frac{3}{2^2} + \dots$  converge? If so, find the sum.
- 8. Does the series  $\sum_{n=2}^{\infty} \frac{1}{n^2 1}$  converge? Why?
- 4. Does the series  $-5 + \frac{5}{2} \frac{5}{3} + \frac{5}{4} 1 + \dots$  converge? If so, find the sum.
- 9. Does  $\sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} + e^{-n} \text{ convergent?}$  Why?
- 5. Does the series  $\sum_{n=0}^{1,578,993,21} ne^{n^2}$  converge? Why?
- 10. Does the series  $\sum_{n=1}^{\infty} n \sin\left(\frac{1}{n}\right)$  converge? Why?
- 6. Does the series  $\sum_{n=10}^{\infty} \frac{3n^3+2}{2n^3-1}$  converge?

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