**Problem statement** Consider an infinite series of the form

$$\pm 3 \pm 1 \pm \frac{1}{3} \pm \frac{1}{9} \pm \frac{1}{27} \pm \cdots \pm \frac{1}{3^n} \pm \cdots .$$

The numbers 3, 1, etc., are given but *you* will decide what the signs should be.

a) Can you choose the signs to make the series diverge?

b) Can you choose the signs to make the series sum to 3.5?

c) Can you choose the signs to make the series sum to 2.25?

In each case, if your answer is "Yes", then specify how to choose the signs; if your answer is "No", then explain.