Quiz 20

Recall that the sum of a geometric series \( a + ar + ar^2 + ar^3 + \ldots = \frac{a}{1-r} \) if \( 0 < r < 1 \)

1. For the series \( 1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27} + \ldots \), \( a = \), \( r = \) and the sum is ________

2. For the series \( 4 + 2 + 1 + \ldots \), \( a = \), \( r = \) and the sum is ________

3. Find the number \( \left( \frac{3}{36} \right)^2 \left( 1 + \frac{27}{36} + \left( \frac{27}{36} \right)^2 + \left( \frac{27}{36} \right)^3 + \ldots \right) \) by using the formula above to find the sum of the geometric series (the second part of the product) and then multiplying by the first part.

4. Convert .4444… to a fraction by using the formula.