Find the rational number (Fraction) for the given decimal.

74) $.\overline{297}$

$$\frac{297}{1000} + \frac{297}{1000000} + \frac{297}{1000000000}$$

$$S_\infty = \frac{\frac{297}{1000}}{1 - \frac{1}{1000}} = \frac{\left(\frac{297}{1000}\right)}{\left(\frac{999}{1000}\right)} = \frac{297}{999} = \frac{99}{333}$$

$$= \frac{33}{111}$$

$$= \boxed{\frac{11}{37}}$$

76) $1.3\overline{8}$

$$1.3\overline{8}$$

$$1.3 + \left(\frac{8}{100} + \frac{8}{1000} + \frac{8}{10000} + \frac{8}{10000} + \cdots\right)$$

$$1\frac{3}{10} + \frac{\frac{8(100)}{100}}{(100)1 - \frac{1}{10}(100)}$$

$$\frac{13}{10} + \frac{8}{100-10}$$

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$$\frac{(9)}{(9)}\frac{13}{10} + \frac{8}{90}$$

$$\frac{117}{90} + \frac{8}{90} = \frac{125}{90} = \boxed{\frac{25}{18}}$$

Rewrite the following as a fraction.

(A) $.3333\overline{3}$

$$\frac{3}{10} + \frac{3}{100} + \frac{3}{1000} + \frac{3}{10000} + \cdots$$

$.3 + .03 + .003$

$S_\infty = \frac{a}{1-r}$

$$\frac{3}{10} \div \frac{9}{10}$$

$$\frac{3}{10} \cdot \frac{\cancel{10}}{9}$$

$$= \frac{\frac{3}{10}}{1 - \frac{1}{10}} = \frac{\left(\frac{3}{10}\right)}{\left(\frac{9}{10}\right)} = \frac{1}{3}$$

**PRE-CALCULUS:** *by Finney, Demana, Watts and Kennedy*
*Sequences and Series*

Find the first 5 terms of the sequence

2) $a_n = 4n - 7$

4) $a_n = \left(\frac{1}{2}\right)^n$