

Each problem is worth 5 points. For full credit provide proper justification for your answer.

1. Find the sum of the series $1 - x + x^2 - x^3 + x^4 - \dots$

$$= \frac{a}{1-x}$$

Great

$$\frac{a=1}{x=-x} \quad \boxed{= \frac{1}{1+x}}$$

a is what you start out with & x is the value each π is multiplied by.

The equation for an infinite series sum is

$$\frac{a}{1-x} \text{ . Then plug in}$$

2. Express the sum $1 + \frac{1}{3} + \frac{1}{9} + \dots + \frac{1}{3^n}$ in terms of n .

$$\frac{a=1}{r=1/3}$$

$$\frac{1 \left(1 - \frac{1}{3^{n+1}} \right)}{1 - \frac{1}{3}}$$

finite

$$\frac{a(1-r^{n+1})}{1-r}$$

$$\boxed{\frac{1 \left(1 - \frac{1}{3^{n+1}} \right)}{\frac{2}{3}}}$$

Nice
Job!