Week 7

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What's New

1.) 217
2.) 1023
3.) $\frac{775}{4}$
4.)1555
5.) $\frac{242}{3}$

What I Have Learned

1. Geometric Series
2. $\frac{a_1}{1-r}$
3. 3
4. 2
5. 48

Problem: Solve Completely.

$$a_1 = 100, r = \tfrac{1}{2}, S_{10} = ?$$

$$S_n = a_1 \cdot \frac{1 - r^n}{1 - r} \tag{1}$$

$$S_{10} = 100 \cdot \frac{1 - \frac{1}{2}^{10}}{1 - \frac{1}{2}} \tag{2}$$

$$S_{10} = 100 \cdot \frac{\frac{1023}{1024}}{\frac{1}{2}} \tag{3}$$

$$S_{10} = 100 \cdot \left(\frac{1023}{1024} \cdot \frac{2}{1}\right) \tag{4}$$

$$S_{10} = 100 \cdot \frac{2046}{1024} \tag{5}$$

$$S_{10} = \frac{204600}{1024} \tag{6}$$

$$S_{10} = 199.8046875 \tag{7}$$

Assessment 1. Infinity

1. $a_1 = 4, \quad r = \frac{1}{5}$

$$S_\infty = \frac{a_1}{1-r} \tag{8}$$

$$S_\infty = \frac{4}{1-\frac{1}{5}} \tag{9}$$

$$S_\infty = \frac{4}{\frac{4}{5}} \tag{10}$$

$$S_\infty = 5 \tag{11}$$

2. $a_1 = 9, \quad r = \frac{1}{3}$

$$S_\infty = \frac{9}{1-\frac{1}{3}} \tag{12}$$

$$S_\infty = \frac{9}{\frac{2}{3}} \tag{13}$$

$$S_\infty = 13.5 \tag{14}$$