6I 2d. $u_1 = \log a$

$$r = \frac{\log(a^2)}{\log a} = \frac{2\log(a)}{\log(a)}$$

$$S_{20} = \frac{\log(a)\left((2)^{20}-1\right)}{2-1} = \log a^{1048575}$$

3b $u_1 = 2.7$

i. $r = \frac{u_2}{u_1} = \frac{10.8}{2.7} = 4$

$$u_n = u_1(r^{n-1})$$

$$\frac{2764.8}{2.7} = \frac{2.7}{2.7}(4^{n-1})$$

$$1024 = 4^{n-1}$$

$n = 6$

$$\ln 1024 = (n-1)\ln 4$$

ii. $$S_6 = \frac{2.7(4^6-1)}{4-1} = 3685.5$$

10) #3

$$S_4 = \frac{1}{u_1} \cdot \frac{u_1(r^4-1)}{r-1} = \frac{20}{1} \cdot \frac{1}{u_1}$$

$$\frac{r-1}{20} \cdot \frac{r^4-1}{r-1} = \frac{20}{u_1} \cdot \frac{r-1}{20}$$

$$= \frac{r^4-1}{20} = \frac{r-1}{u_1}$$

$$S_7 = \frac{u_1(r^7-1)}{r-1} = 546.5 \rightarrow \frac{r^7-1}{546.5} = \frac{r-1}{u_1}$$

$$\frac{r^4-1}{20} = \frac{r^7-1}{546.5} \rightarrow 20(r^7-1) = 546.5(r^4-1)$$

$$20r^7 - 20 = 546.5r^4 - 546.5$$

$$20r^7 - 546.5r^4 + 526.5 = 0$$