Algebra 2 | Monday 2-25-13 | Class Notes

Evaluate each geometric series:

(89) $\sum_{i=1}^{9} 3^{i-1}$

Long Way

$1 + 3 + 9 + 27 + 81 + 243 + \ldots$

$729 + 2187 + 6561$

$S_N = a_1\left(\frac{1-r^N}{1-r}\right)$ $r \neq 1$

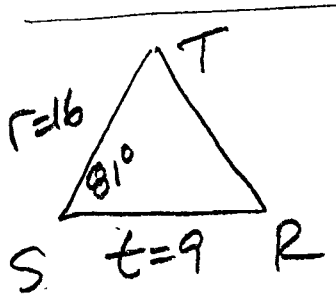
$= 1\left(\frac{1-3^9}{1-3}\right)$

$= 1\left(\frac{1-19683}{-2}\right)$

$= \frac{19682}{2} = 9841$

6561	1
2187	2
729	3
243	
108	
13	
9841	

(III) Area? $\triangle STR$ $t = 9$, $r = 16$, $m\angle S = 81^\circ$



SAS $\Rightarrow$ $A = \frac{1}{2} r t \sin 81^\circ$

$= \frac{1}{2}(16)(9)(.9877)$

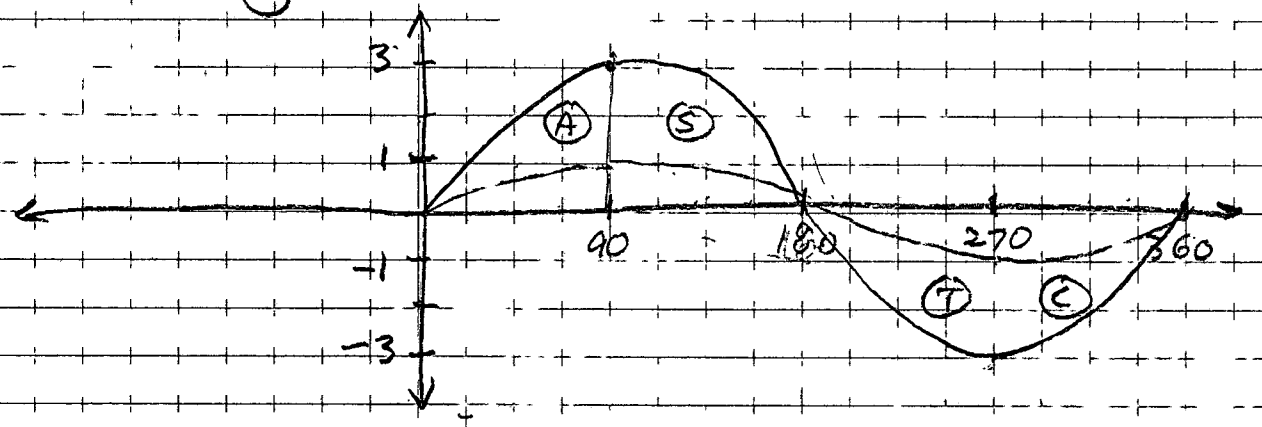
$72(.9877)$

.9877
× 72
19754
69139
71.1144

$A = 71.1 \text{ units}^2$ ✓

GRAPH:

(119) $y = 3 \sin \theta$

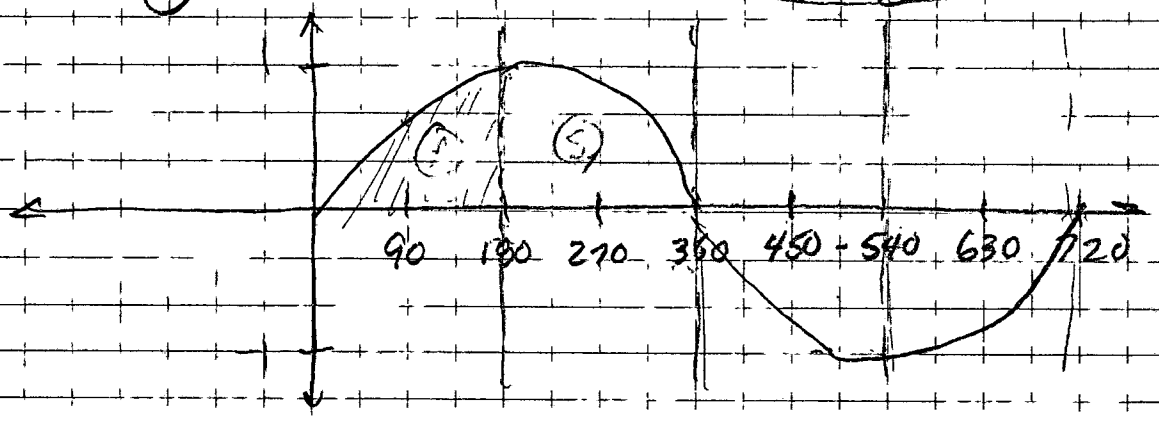


$y = a \sin(b\theta - h) + K$

Amp — Per $= \frac{360}{|B|}$ — horizontal (phase SHIFT) — Vertical SHIFT

(EX) $y = 1 \sin\left(\frac{1}{2}\theta\right)$ ← AMP

$\text{Per} = \frac{360}{\frac{1}{2}} = 720$



Using degrees, find Amplitude, period

(123) $y = 2\sin 3\theta + 2$

Amplitude = 2

$$\text{period} = \frac{360}{|b|} = \frac{360}{3} = \boxed{120^\circ}$$

(125) $y = 4\sin\left(\frac{\theta}{3} - 150\right) - 3$

$$\text{Amp} = 4$$

$$\text{per} = \frac{360}{\left|\frac{1}{3}\right|} = 3(360) = \boxed{1080^\circ}$$