1.1 Arithmetic Sequences

Tuesday, September 1,2015 10:40 AM

sequences

- alist of numbers, often with a pattern
For example:
(1) $3,7,11,15,19$

Arithmet is sequence
(2) $\frac{20,18}{-2}, 16 \ldots$
$-2$
(3) $\underset{\substack{2,4 \\-7 \\ \times 2}}{2,8,16,32} \begin{aligned} & \text { Geometric } \\ & \text { sequence }\end{aligned}$

Arithmetic sequence

$\operatorname{term} 1 \quad-t_{2} \quad-t_{3}$ $t_{n}$ $t_{1}$
general

$$
\begin{aligned}
& t_{1} \\
& \Rightarrow \text { terms } l_{1}, t_{2}, \ldots t_{n}^{l} \ldots t_{\infty} \text { term }
\end{aligned}
$$

$\Rightarrow$ common difference," $d$ " $d=4$ above
Ex. 4, 8, 12, 16, 20

$$
\begin{array}{ll}
t_{1}=4 & t_{10}=? \\
d=4 & t_{1}=4 \\
& t_{2}=4+1 \cdot 4=8
\end{array}
$$

$$
\begin{aligned}
& t_{2}=7+1 \cdot 7-0 \\
& t_{3}=4+2 \cdot 4=12 \\
& t_{4}=4+3 \cdot 4=16 \\
& \vdots \\
& t_{n}=t_{1}+(n-1) d \\
& t_{10}=4+9 \cdot 4 \\
&=40
\end{aligned}
$$

(xx) If $t_{1}=-10$

$$
d=7
$$

find $t_{2 z}$

$$
\begin{aligned}
t_{n} & =t_{1}+(n-1) d \\
t_{22} & =-10+(22-1) \cdot 7 \\
& =-10+21 \cdot 7 \\
& =137
\end{aligned}
$$

2x,3) Finding $t$,

$$
\text { first find } d
$$

say $t_{3}=4 \quad t_{8}=34 \quad$ nus

$$
\begin{aligned}
& 8-3=5=5 d \\
& t-t-1-1
\end{aligned}
$$

$$
\begin{aligned}
& c \\
& t_{8}=t_{3}+5 d \\
& 34=4+5 d \\
& 30=5 d \\
& d=6 \\
& t_{n}=t_{1}+(n-1) d \quad t_{3}=4 \\
& t_{3} 4= d=6 \\
& 4=t_{1}+2 \cdot 6 \\
& t_{1}=-8 \\
& \text { P. 7-13 } \\
& \pm 1,4-6,7 a, 8,10,13,15,16
\end{aligned}
$$

