

$$\textcircled{94} \log_b x = 3 \log_b P - \left(\log_b t + \frac{1}{2} \log_b r \right)$$

$$\log_b P^3 - \left(\log_b t^2 + \log_b r^{1/2} \right)$$

$$\log_b P^3 - \log_b t^2 \sqrt{r}$$

$$\log_b x = \log_b \left(\frac{P^3}{t^2 \sqrt{r}} \right)$$

$$\textcircled{100} P = 10(2)^{t/60}$$

~~3 · 2 hrs.~~
~~6 hrs.~~

$$27 = 9^x$$

$$3^3 = (3^2)^x$$

$$3 = 2x$$

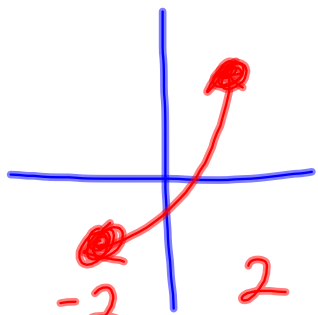
$$\frac{320}{10} = \frac{10(2)^{t/60}}{10}$$

$$\log 32 = \log 2^{t/60}$$

$$\frac{\log(32)}{\log 2} = \frac{t \cdot (\log 2)}{\log 2}$$

$$60 \left(\frac{\log 32}{\log 2} \right) = t \cdot 60$$

(88)

$$y = 2^{x+1} - 3$$
$$y = 2^{(-2)+1} - 3$$
$$y = \underset{\substack{\uparrow \\ 1}}{2^{-1}} - 3 = \frac{1}{2} - 3 = -2.5$$


(35)

$$a_1 = 8, \quad a_5 = 2592$$

$$a_n = a_1 \cdot r^{n-1}$$

$$a_5 = 8 \cdot r^{5-1}$$

$$2592 = 8 \cdot r^4$$

$$\frac{2592}{8} = r^4$$

$$\sqrt[4]{324} = \sqrt[4]{r^4}$$

$$\pm \sqrt[4]{324} = r$$

4 Math 5

28

$$125, 25, 5, \dots$$

$$r = \frac{25}{125} = \frac{1}{5} \quad a_1$$

$$a_n = a_1 \cdot r^{n-1}$$
$$a_1 = 125 \cdot \left(\frac{1}{5}\right)^{n-1}$$

Series

Arithmetic Series - The indicated sum of the terms of an arithmetic sequence.

Ex. 1 Sequence: 3, 7, 11, 15, ...
(Arith. $d=4$)

Arith. Series: $3+7+11+15+\dots$

$3 \rightarrow 5$

Summation Notation for a Series:

$$\sum_{n=1}^{\text{End } k} a_1 + d(n-1)$$

Arith. Explicit Formula

Let's add the first 3 terms:

$$\sum_{n=1}^3 4n-1 =$$

$3, 7, 11, 15$

$$* a_n = a_1 + d(n-1)$$

$$3 + 4(n-1)$$

$$3 + 4n - 4$$

$$4n - 1$$

$$4(1) - 1 = 3$$

$$4(2) - 1 = 7$$

$$4(3) - 1 = 11$$

$$\underline{\underline{21}}$$

Ex. 2 ⓐ Show the series for the sequence 1, 4, 7, ... in summation notation. ⓑ Find S_5

ⓐ

$$\sum_{n=1}^5 (3n-2)$$

* $a_n = a_1 + d(n-1)$
 $a_n = 1 + 3(n-1)$
 $1 + 3n - 3 = 3n - 2$

ⓑ

$$\begin{aligned} 3(1) - 2 &= 1 \\ 3(2) - 2 &= 4 \\ 3(3) - 2 &= 7 \\ 3(4) - 2 &= 10 \\ 3(5) - 2 &= 13 \end{aligned}$$

Sum of the first 5 terms.

$$\frac{1}{2}(35) = 17.5$$

ⓒ check part ⓑ with the Arith. Sum Formula:

$$S_n = \frac{n(a_1 + a_n)}{2}$$

of terms you are adding

$$S_5 = \frac{5(1 + a_5)}{2} = \frac{5(1 + 13)}{2}$$

$a_n = 3n - 2$
 $a_5 = 3(5) - 2 = 13$

Pg. 264 #10

ⓐ Write sum in Sigma Notation

$$\sum_{n=1}^6 (-4.8n + 28.8)$$

* $a_n = a_1 + d(n-1)$
 $0 = 24 + d(6-1)$

$$\begin{aligned} 0 &= 24 + 5d \\ -24 & \quad -24 \\ \hline -24 &= 5d \\ \frac{-24}{5} &= \frac{5d}{5} \\ -4.8 &= d \end{aligned}$$

ⓑ Find the sum of the first "n" terms.

$a_1 = 24, a_n = 0, n = 6$

$$S_n = \frac{n(a_1 + a_n)}{2} \quad S_6 = \frac{6(24 + 0)}{2} = 72$$

Pg. 264-265
 # 3-18 Mult of 3
 Regents # 112-128 evens