

PATTERN	$b = 2$	7	22	47
1st DIFF		5	15	25
2nd DIFF		$2a = 10$		10

QUADRATIC

$$ax^2 + b$$

$$5x^2 + 2$$

Rule is : $5x^2 + 2$

Check

$$f(3) = 5(3)^2 + 2 = 47$$

if works!

P. 31 (i)

PATTERN	$0 = b$	3	12	27	48	QUADRATIC
1st DIFF		3	9	15	21	$ax^2 + b$
2nd DIFF		$2a = 6$	6	6		$= 3x^2$

check $f(2) = 3(2)^2 = 12 \quad \checkmark$

works

Rule is : $3x^2$

P.31 Q2(i)

PATTERN	$\begin{matrix} -1 \\ 3 \\ 4 \end{matrix}$	$\begin{matrix} 15 \\ 12 \end{matrix}$	$\begin{matrix} 35 \\ 20 \end{matrix}$	$\begin{matrix} 63 \\ 28 \end{matrix}$
1st DIFF				
2nd DIFF		$\begin{matrix} 8 \\ 8 \end{matrix}$	$\begin{matrix} 8 \\ 8 \end{matrix}$	

QUADRATIC
 $ax^2 + b$
 $4x^2 - 1$

check: $f(3) = 4(3)^2 - 1 = 35 \checkmark$ it works

Rule: $4x^2 - 1$

PATTERN	$\begin{matrix} 4 \\ 10 \\ 18 \end{matrix}$	$\begin{matrix} 28 \end{matrix}$	
1st DIFF	$\begin{matrix} 6 \\ 8 \end{matrix}$	$\begin{matrix} 10 \end{matrix}$	
2nd DIFF	$\begin{matrix} 2 \end{matrix}$	$\begin{matrix} 2 \end{matrix}$	
x	$\begin{matrix} 0 \\ 1 \\ 2 \\ 3 \end{matrix}$		
PATTERN	$\begin{matrix} 4 \\ 10 \\ 18 \\ 28 \end{matrix}$		
$-x^2$	$\begin{matrix} -0 \\ -1 \\ -4 \\ -9 \end{matrix}$		
LINEAR	$\begin{matrix} 4 \\ 9 \\ 14 \\ 19 \end{matrix}$		
	$\begin{matrix} 5 \\ 5 \\ 5 \end{math>$		

Rule is: $1x^2 + 5x + 4$

10th Term = $f(9) = (9)^2 + 5(9) + 4$
 $= 130$

QUADRATIC

$ax^2 + b$

$1x^2 + 4$

Check:

$$f(3) = (3)^2 + 4 = 13 \quad X$$

doesn't work!

LINEAR

$ax + b$

$= 5x + 4$

Check:

$$f(2) = (2)^2 + 5(2) + 4 = 18 \quad \checkmark$$