Exercise 21.2 S

1 a) First term 2
Add consecutive odd numbers

2, 3, 6, 11

1 b) First term 5
Add consecutive even numbers

5, 7, 11, 17

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2 a) Find next two terms

3, 7, 13, 21, 31, 43

2 b) 4, 6, 10, 16, 24, 34

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3 a) Find missing term

6, 12, 22, [36], 54

3 b) [2] 8, 18, 32, 50

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4 a) i) Find first 3 terms and 10th term

$T(n) = n^2 + 3$

1^2+3	2^2+3	3^2+3	10^2+3
4	7	12	103

ii) $T(n) = n^2 + 2n$

$1^2+2(1)$	$2^2+2(2)$	$3^2+2(3)$	$10^2+2(10)$
3	8	15	120

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5 vii) $2n^2 + 2n + 2$

$2(1)^2 + 2(1) + 2 = 2 + 2 + 2 = 6$

$2(2)^2 + 2(2) + 2 = 8 + 4 + 2 = 14$

$2(3)^2 + 2(3) + 2 = 18 + 6 + 2 = 26$

$2(4)^2 + 2(4) + 2 = 32 + 8 + 2 = 42$

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6 g

		4	4	
	6	8 14	12 26	16 42
$2n^2$	2	8	18	32
	4	6	8	10
$+2n$	2	4	6	8
$+2$	2	2	2	2

$2n^2 + 2n + 2$

7a)

$$\begin{array}{cccccc} & & -2 & & -2 & \\ & -3 & & -5 & & -7 \\ & 9, & & 6, & 1, & -6 \\ -n^2 & -1 & & -4 & -9 & -16 \\ \hline +10 & 10 & & 10 & 10 & 10 \end{array}$$

n^{th} term $= -n^2 + 10$

7c)

$$\begin{array}{cccccc} & & -2 & & -2 & \\ & -2 & & -4 & & -6 \\ & 0 & & -2 & -6 & -12 \\ -n^2 & -1 & & -4 & -9 & -16 \\ \hline +n & 1 & & 2 & 3 & 4 \end{array}$$

n^{th} term $-n^2 + n$

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9) Is 150 in sequence generated by $n^2 + 3$

If $n^2 + 3 = 150$

$n^2 = 150 - 3$

$n^2 = 147$

$n = \sqrt{147}$

$n = 12.124$ not a whole number

So answer is no
