

## Generating Quadratic Sequences

By finding the first and second differences, decide whether each of these sequences is quadratic.

- (a) 1, 5, 11, 19, 29, 41
- (b) 2, 5, 8, 11, 14, 17
- (c) 0, 8, 22, 41, 68, 98
- (d) 2, 9, 20, 35, 54, 77
- (e) 4, 1, 0, 1, 4, 9
- (f) 6, 17, 36, 65, 98, 141
- (g) 18, 37, 62, 93, 130, 173
- (h) 3, 9, 23, 43, 75, 113
- (i) -10, -4, 12, 38, 74, 120
- (j) 17, 39, 69, 107, 153, 207

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Generate the first five terms of each of these quadratic sequences.

- (a)  $n^2 + 10$
- (b)  $n^2 - 1$
- (c)  $n^2 + n$
- (d)  $n^2 + 2n + 1$
- (e)  $n^2 - 3n$
- (f)  $n^2 - n - 2$
- (g)  $2n^2 + 5$
- (h)  $3n^2 - 7$
- (i)  $2n^2 + n - 5$
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Find the 10<sup>th</sup> and 50<sup>th</sup> term of the following quadratic sequences.

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- (i)  $2n^2 + n - 1$
- (j)  $n(5n + 3)$

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The first four terms of a quadratic sequence are -1, 2, 7, 14, ... . If the  $n$ th term is  $n^2 + an + b$ , find the values of  $a$  and  $b$ .

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