AQA Level 2 Further mathematics Further algebra

Section 4: Proof and sequences

Section test

Questions 1 and 2 are about the linear sequence 20, 17, 14, 11, 8, …
The nth term of the sequence is given by $an + b$.

1) The value of a is

(a) 3
(b) -3
(c) 20
(d) 23
(e) I don't know

2) The value of b is

(a) 20
(b) -3
(c) 23
(d) 3
(e) I don't know

Questions 3, 4 and 5 are about the quadratic sequence 2, 9, 18, 29, 42, …
The nth term of the sequence is given by $pn^2 + qn + r$.

3) The value of p is

(a) 2
(b) 1
(c) -2
(d) -1
(e) I don't know

4) The value of q is

(a) 4
(b) 2
(c) -1
(d) 1
(e) I don't know

5) The value of r is

(a) -3
(b) 2
(c) 0
(d) -1
(e) I don't know

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Questions 6 and 7 are about the sequence with *n*th term $n(n+1)$.

6) The 5^{th} term of this sequence is

(a) 30
(b) 20
(c) 25
(d) 56
(e) I don't know

7) The last term of this sequence is 240.
How many terms are in the sequence?

(a) 14
(b) 16
(c) 15
(d) 17
(e) I don't know

8) A sequence has *n*th term $n^2 + kn - 3$.
The 9^{th} term is three times the 5^{th} term.
The value of *k* is

(a) 2
(b) 3
(c) 1
(d) -1
(e) I don't know

Questions 9 and 10 are about the sequence with *n*th term $\frac{3-2n}{8n+1}$

9) The 3^{rd} term of the sequence is

(a) $\frac{3}{32}$
(b) $\frac{9}{25}$
(c) $\frac{9}{32}$
(d) $-\frac{3}{25}$
(e) I don't know

10) The limit of the sequence as $n \to \infty$ is

(a) 0.25
(b) 4
(c) -0.25
(d) -4
(e) I don't know