2.13-4 Sequences and Early Algebra: Practice Set 4: 10-minute Pack

Total Marks

GL ASSESSMENT EP.M68 · Calculators not allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

Sequences and Early Algebra: Practice Set 4

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A fourth 11+ sequences and early-algebra practice set, complementing EP.M13/EP.M13B (Sequences and Patterns), EP.M14/EP.M14B (Early Algebra), EP.M28/EP.M39 (Algebra, Sequences and Patterns Depth) and EP.M56 (Sequences, Patterns and Early Algebra: Practice Set 3). It covers term-to-term and position-to-term sequences, linear nth-term rules, function machines, forming and simplifying expressions, and one-step and two-step equations, with an entirely fresh set of numbers, contexts and names. Questions are ramped from straightforward warm-up items to demanding multi-step and reverse-reasoning problems.

1 The nth term of a sequence is 6n - 9.

Work out the 15th term of the sequence.

(1)

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2 The nth term of a sequence is 8n + 3.

(a) Write down the first three terms of the sequence. **(1)**

(b) Is 100 a term in this sequence? Show your working to explain your answer. **(2)**

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3 A function machine works like this: input, then subtract 6, then multiply by 4, to give the output.

(a) Find the output when the input is 11. **(1)**

.....

(b) Find the input when the output is 52. Show your working. **(2)**

.....

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4 Write an expression for each statement. Use the letter given for the unknown number.

(a) 9 more than a number d **(1)**

.....

(b) a number k is halved, then 4 is added **(1)**

.....

(c) the cost, in pounds, of j jars of honey at 45p each **(1)**

.....

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5 Simplify fully.

(a) 12y - 5y + y **(1)**

(b) 8m + 3n - 5m - n **(1)**

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Mark scheme · 2.13-4 Sequences and Early Algebra: Practice Set 4: 10-minute Pack

Question 1

81 cao **B1**

Answer: 81

Question 2

(a) 11, 19, 27 all correct cao **B1**

(a) Answer: 11, 19, 27

(b) sets 8n + 3 = 100 and attempts to solve for n **M1**

(b) correct conclusion with valid reason: No, because n = 97/8 = 12.125, which is not a whole number **A1**

(b) Answer: No, because n is not a whole number (n = 97/8 = 12.125)

Question 3

(a) 20 cao **B1**

(a) Answer: 20

(b) correct reverse method: divide by 4 then add 6 oe **M1**

(b) 19 cao **A1**

(b) Answer: 19

Question 4

(a) d + 9 oe **B1**

(a) Answer: d + 9

(b) k/2 + 4 oe **B1**

(b) Answer: k/2 + 4

(c) 0.45j oe (accept 9j/20) **B1**

(c) Answer: 0.45j (or 9j/20)

Question 5

(a) 8y cao **B1**

(a) Answer: 8y

(b) 3m + 2n oe cao **B1**

(b) Answer: 3m + 2n

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