

Algebra problem-solving and end-of-year review

WHAT THIS LESSON TEACHES

Finding the rule that links a term's position to its value lets you jump to any term without listing them all.

→ 1 to 4, 2 to 7, 3 to 10 gives 'multiply the position by 3 then add 1'.

→ $3n + 1 = 34$ becomes $3n = 33$ then $n = 11$.

MODEL THIS ON THE BOARD

SOLVE THE PATTERN 5, 9, 13, 17 TO REACH 61

- 1 Write the rule in words: multiply position by 4 then add 1.
- 2 Write the expression: $4n + 1$.
- 3 Set up the equation: $4n + 1 = 61$.
- 4 Take away 1: $4n = 60$.
- 5 Share by 4: $n = 15$.

DISCUSSION STARTER

REFLECT Where this year did using a letter for an unknown make a problem easier?

ANSWER KEY

Scaffold: visual check on the page

Q1: 74

Q2: 34

Q3: 301

Q4: 21

Q5: 112

a) Always — Each term adds 3 so the rule holds for every position.

b) Always — The rule lets you jump straight to any term.

c) Always — That pattern uses $4n + 1$ instead.

d) Always — Subtract 1 then divide by 3 reaches exactly 11.

EXTENSION SHEET · STRETCH ANSWERS

S1: + 11

S2: + 14

S3: 43

S4: 53

S5: 63