

Inductive reasoning: patterns, rules, and generalisation: open practice pack

100 untimed questions across 10 authored sections.

Detail	Value
Pack	cognitive-skills-inductive-reasoning
Source	cognitive-skills
Pack version	v1
Worksheet items	100
Authored hints	0
Worked explanations	100

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Learner worksheet

Ten untimed sections that build from simple sequences to judging the strength of generalisations. Work only from the information given in each prompt. Every item contains all the data you need.

Choose one answer for each item. For a delayed-recall item, read its study text, cover it, and then answer without looking back.

Number sequences: single-rule steps

Find the one rule driving each sequence, then choose the next term.

1. inductive-reasoning-s01-q01

What is the next number in the sequence 2, 4, 6, 8, ...?

- A. 9
- B. 10
- C. 12
- D. 14

Your answer: _____

2. inductive-reasoning-s01-q02

What is the next number in the sequence 5, 10, 15, 20, ...?

- A. 21
- B. 24
- C. 25
- D. 30

Your answer: _____

3. inductive-reasoning-s01-q03

What is the next number in the sequence 3, 6, 12, 24, ...?

- A. 30
- B. 36
- C. 42
- D. 48

Your answer: _____

4. inductive-reasoning-s01-q04

What is the next number in the sequence 20, 17, 14, 11, ...?

- A. 8
- B. 9
- C. 7
- D. 6

Your answer: _____

5. inductive-reasoning-s01-q05

What is the next number in the sequence 1, 4, 9, 16, ...?

- A. 25
- B. 20
- C. 24
- D. 36

Your answer: _____

6. inductive-reasoning-s01-q06

What is the next number in the sequence 2, 5, 8, 11, ...?

- A. 12
- B. 13
- C. 14
- D. 15

Your answer: _____

7. inductive-reasoning-s01-q07

What is the next number in the sequence 64, 32, 16, 8, ...?

- A. 2
- B. 4
- C. 6
- D. 0

Your answer: _____

8. inductive-reasoning-s01-q08

What is the next number in the sequence 1, 2, 4, 7, 11, ...?

- A. 13
- B. 14
- C. 15
- D. 16

Your answer: _____

9. inductive-reasoning-s01-q09

What is the next number in the sequence 90, 80, 71, 63, ...?

- A. 56
- B. 55
- C. 57
- D. 54

Your answer: _____

10. inductive-reasoning-s01-q10

What is the next number in the sequence 7, 14, 21, 28, ...?

- A. 32
- B. 35
- C. 36
- D. 42

Your answer: _____

Letter patterns and alphabet rules

Treat the alphabet as a numbered line and work out the rule linking the letters.

11. inductive-reasoning-s02-q01

What is the next letter in the sequence A, C, E, G, ...?

- A. H
- B. J
- C. I
- D. K

Your answer: _____

12. inductive-reasoning-s02-q02

What is the next letter in the sequence Z, X, V, T, ...?

- A. R
- B. S
- C. Q
- D. P

Your answer: _____

13. inductive-reasoning-s02-q03

What is the next letter in the sequence B, E, H, K, ...?

- A. M
- B. N
- C. O
- D. L

Your answer: _____

14. inductive-reasoning-s02-q04

What is the next pair in the sequence AZ, BY, CX, DW, ...?

- A. EW
- B. FV
- C. EU
- D. EV

Your answer: _____

15. inductive-reasoning-s02-q05

What is the next letter in the sequence A, B, D, G, K, ...?

- A. N
- B. O
- C. P
- D. Q

Your answer: _____

16. inductive-reasoning-s02-q06

What is the next pair in the sequence CD, FG, IJ, LM, ...?

- A. NO
- B. OP
- C. PQ
- D. MN

Your answer: _____

17. inductive-reasoning-s02-q07

What is the next letter in the sequence A, C, B, D, C, E, D, ...?

- A. F
- B. E
- C. G
- D. C

Your answer: _____

18. inductive-reasoning-s02-q08

What is the next letter in the sequence M, N, L, O, K, P, ...?

- A. I
- B. Q
- C. J
- D. H

Your answer: _____

19. inductive-reasoning-s02-q09

What comes next in the sequence A1, C3, E5, G7, ...?

- A. H8
- B. J9
- C. I8
- D. I9

Your answer: _____

20. inductive-reasoning-s02-q10

Four of these letter pairs follow one rule and one breaks it: BD, EG, HJ, KN, PR. Which pair breaks the rule?

- A. EG
- B. KN
- C. HJ
- D. PR

Your answer: _____

Shape and symbol patterns

Each pattern uses described shapes or symbols: infer the repeating or evolving rule.

21. inductive-reasoning-s03-q01

A pattern repeats: circle, square, triangle, circle, square, ... What shape comes next?

- A. Circle
- B. Square
- C. Star
- D. Triangle

Your answer: _____

22. inductive-reasoning-s03-q02

Symbol sequence: ? ? ? ? ? ? ... What is the eighth symbol?

- A. ?
- B. ?
- C. ?
- D. It cannot be determined

Your answer: _____

23. inductive-reasoning-s03-q03

An arrow points up, then right, then down, then left, then up, then right. Where does it point next?

- A. Left
- B. Up
- C. Down
- D. Right

Your answer: _____

24. inductive-reasoning-s03-q04

A row of cards shows 1 dot, then 3 dots, then 5 dots, then 7 dots. How many dots are on the next card?

- A. 8
- B. 9
- C. 10
- D. 11

Your answer: _____

25. inductive-reasoning-s03-q05

A pattern alternates: large white square, small black square, large white square, small black square, large white square, ... What comes next?

- A. Small black square
- B. Large white square
- C. Large black square
- D. Small white square

Your answer: _____

26. inductive-reasoning-s03-q06

A series of figures shows a triangle (3 sides), a square (4 sides), a pentagon (5 sides), then a hexagon (6 sides). Which figure comes next?

- A. An octagon (8 sides)
- B. A pentagon (5 sides)
- C. A nonagon (9 sides)
- D. A heptagon (7 sides)

Your answer: _____

27. inductive-reasoning-s03-q07

Symbol groups appear in this order: ? then ?? then ??? then ?????. What is the next group?

- A. ?????
- B. ?????
- C. ?????
- D. ?????

Your answer: _____

28. inductive-reasoning-s03-q08

A square tile is shaded one quarter at a time: first the top-left quarter, then the top-right, then the bottom-right. Which quarter is shaded next?

- A. Bottom-left
- B. Top-left
- C. Bottom-right
- D. Top-right

Your answer: _____

29. inductive-reasoning-s03-q09

A series of cards shows: 1 triangle, 2 squares, 3 triangles, 4 squares. What does the next card show?

- A. 5 squares
- B. 5 triangles
- C. 4 triangles
- D. 6 squares

Your answer: _____

30. inductive-reasoning-s03-q10

Four tiles follow one rule and one breaks it: a triangle with 3 dots, a square with 4 dots, a pentagon with 5 dots, and a hexagon with 7 dots. Which tile breaks the rule?

- A. The triangle with 3 dots
- B. The square with 4 dots
- C. The pentagon with 5 dots
- D. The hexagon with 7 dots

Your answer: _____

Classification: find the odd one out

Work out the rule the group shares, then choose the item that does not obey it.

31. inductive-reasoning-s04-q01

Which number does not belong with the others: 8, 64, 100, 216?

- A. 8
- B. 64
- C. 100
- D. 216

Your answer: _____

32. inductive-reasoning-s04-q02

Which word does not belong with the others: letter, coffee, dinner, orange?

- A. letter
- B. coffee
- C. dinner
- D. orange

Your answer: _____

33. inductive-reasoning-s04-q03

Which number does not belong with the others: 27, 35, 45, 63?

- A. 27
- B. 35
- C. 45
- D. 63

Your answer: _____

34. inductive-reasoning-s04-q04

Which letter group does not belong with the others: NPS, BDF, HJL, PRT?

- A. NPS
- B. BDF
- C. HJL
- D. PRT

Your answer: _____

35. inductive-reasoning-s04-q05

Which pair does not belong with the others: (3, 7), (6, 4), (5, 6), (8, 2)?

- A. (3, 7)
- B. (6, 4)
- C. (5, 6)
- D. (8, 2)

Your answer: _____

36. inductive-reasoning-s04-q06

Which word does not belong with the others: level, civic, rotor, tiles?

- A. level
- B. civic
- C. rotor
- D. tiles

Your answer: _____

37. inductive-reasoning-s04-q07

Which number does not belong with the others: 46, 53, 64, 82?

- A. 46

- B. 53
- C. 64
- D. 82

Your answer: _____

38. inductive-reasoning-s04-q08

Which triple does not belong with the others: (3, 6, 12), (5, 10, 20), (4, 8, 12), (7, 14, 28)?

- A. (3, 6, 12)
- B. (5, 10, 20)
- C. (4, 8, 12)
- D. (7, 14, 28)

Your answer: _____

39. inductive-reasoning-s04-q09

Which clock time does not belong with the others: 14:14, 12:21, 15:51, 10:01?

- A. 14:14
- B. 12:21
- C. 15:51
- D. 10:01

Your answer: _____

40. inductive-reasoning-s04-q10

Which group does not belong with the others: (2, 3, 5), (5, 7, 12), (11, 13, 24), (7, 11, 17)?

- A. (2, 3, 5)
- B. (5, 7, 12)
- C. (11, 13, 24)
- D. (7, 11, 17)

Your answer: _____

Analogies: transfer the relation

Work out the relation in the example pair, then apply exactly the same relation to the new case.

41. inductive-reasoning-s05-q01

3 is to 6 as 7 is to ...?

- A. 14
- B. 10
- C. 21
- D. 17

Your answer: _____

42. inductive-reasoning-s05-q02

C is to F as J is to ...?

- A. L
- B. M
- C. N
- D. K

Your answer: _____

43. inductive-reasoning-s05-q03

“stop” is to “pots” as “flow” is to ...?

- A. fowl
- B. low
- C. wolf
- D. flew

Your answer: _____

44. inductive-reasoning-s05-q04

4 is to 16, and 5 is to 25. Following the same rule, 7 is to ...?

- A. 28
- B. 35
- C. 14
- D. 49

Your answer: _____

45. inductive-reasoning-s05-q05

25 is to 5 as 64 is to ...?

- A. 6
- B. 8
- C. 32
- D. 16

Your answer: _____

46. inductive-reasoning-s05-q06

BC is to EF as JK is to ...?

- A. MN
- B. NO
- C. LM
- D. KL

Your answer: _____

47. inductive-reasoning-s05-q07

$\frac{1}{2}$ is to 2 as $\frac{1}{8}$ is to ...?

- A. 4
- B. 16
- C. $\frac{1}{4}$
- D. 8

Your answer: _____

48. inductive-reasoning-s05-q08

The pair (3, 5) is to 8 as the pair (7, 6) is to ...?

- A. 12
- B. 13
- C. 42
- D. 1

Your answer: _____

49. inductive-reasoning-s05-q09

A triangle is to 3 as a hexagon is to ...?

- A. 6
- B. 5
- C. 8
- D. 4

Your answer: _____

50. inductive-reasoning-s05-q10

In a letter code, CAT is written as DBU. Using the same code, how is DOG written?

- A. EOH
- B. CPF
- C. EPH
- D. DPH

Your answer: _____

Alternating and interleaved sequences

These sequences mix two rules at once: separate the strands before predicting the next term.

51. inductive-reasoning-s06-q01

What is the next number in the sequence 1, 10, 2, 20, 3, 30, 4, ...?

- A. 5
- B. 40
- C. 31
- D. 50

Your answer: _____

52. inductive-reasoning-s06-q02

What is the next number in the sequence 2, 100, 4, 90, 6, 80, ...?

- A. 70
- B. 10
- C. 8
- D. 9

Your answer: _____

53. inductive-reasoning-s06-q03

What is the next number in the sequence 5, 6, 8, 9, 11, 12, ...?

- A. 13
- B. 15
- C. 16
- D. 14

Your answer: _____

54. inductive-reasoning-s06-q04

What comes next in the sequence A, 2, C, 4, E, 6, ...?

- A. G
- B. 8
- C. F
- D. 7

Your answer: _____

55. inductive-reasoning-s06-q05

What is the next number in the sequence 40, 1, 35, 3, 30, 9, 25, ...?

- A. 20
- B. 18
- C. 27
- D. 81

Your answer: _____

56. inductive-reasoning-s06-q06

What is the next number in the sequence 1, 1, 2, 3, 5, 8, ...?

- A. 11
- B. 12
- C. 10
- D. 13

Your answer: _____

57. inductive-reasoning-s06-q07

What is the next number in the sequence 100, 2, 90, 4, 81, 8, 73, ...?

- A. 66
- B. 16
- C. 12
- D. 64

Your answer: _____

58. inductive-reasoning-s06-q08

What comes next in the sequence J, 1, K, 3, M, 6, P, 10, ...?

- A. Q
- B. S
- C. T
- D. U

Your answer: _____

59. inductive-reasoning-s06-q09

What is the next number in the sequence 6, 11, 8, 13, 10, 15, 12, ...?

- A. 17
- B. 14
- C. 16
- D. 19

Your answer: _____

60. inductive-reasoning-s06-q10

What is the next number in the sequence 2, 6, 3, 9, 4.5, 13.5, ...?

- A. 27
- B. 20.25
- C. 7
- D. 6.75

Your answer: _____

Generalising from observations

Read the observations and choose the conclusion they best support, using only what is given.

61. inductive-reasoning-s07-q01

Ana has recorded 47 swan sightings at her local lake this year, and every swan she recorded was white. Which conclusion do her observations best support?

- A. Swans at this lake are usually white.
- B. All swans everywhere are white.
- C. The next swan Ana sees cannot be a different colour.
- D. White is the only possible swan colour.

Your answer: _____

62. inductive-reasoning-s07-q02

A baker notices that rye loaf sales rose on each of the last six rainy Saturdays and fell on each of the last five sunny Saturdays. Which conclusion is best supported?

- A. Rain causes people to crave rye bread.
- B. Rye sales rise on rainy days in every town.
- C. At this bakery, rainy Saturdays have been associated with higher rye sales.
- D. Sunny weather stops people eating bread.

Your answer: _____

63. inductive-reasoning-s07-q03

In a sample of 200 bolts from Machine A, 3 were faulty. In a sample of 200 bolts from Machine B, 21 were faulty. Which conclusion is best supported?

- A. Machine B is broken and must be replaced.
- B. Machine B's output showed a higher fault rate in these samples.
- C. Machine A never produces faulty bolts.
- D. The next bolt from Machine B will certainly be faulty.

Your answer: _____

64. inductive-reasoning-s07-q04

In one garden bed, each of the 12 tomato plants given compost grew taller than each of the 12 plants without compost. Which is the safest reading of this result?

- A. Compost makes all plants grow taller.
- B. The gardener's soil must be unusually poor.
- C. Tomatoes cannot grow well without compost.
- D. In this garden's trial, compost went together with taller growth.

Your answer: _____

65. inductive-reasoning-s07-q05

For five weekdays in a row, the 08:15 bus arrived between 8 and 10 minutes late, while the 08:45 arrived on time. What is the most reasonable expectation for tomorrow?

- A. The 08:15 is likely, though not certain, to be late again.
- B. The 08:15 will be exactly 9 minutes late.
- C. The 08:45 can never run late.
- D. Every bus in the city is unreliable.

Your answer: _____

66. inductive-reasoning-s07-q06

A café surveyed 60 customers and found one in four chose oat milk, but the survey ran only on weekday mornings. Before generalising to all customers, which caution matters most?

- A. Sixty people can never tell you anything useful.

- B. Oat milk drinkers probably avoid surveys.
- C. The sample may not represent afternoon or weekend customers.
- D. The survey should have asked about tea instead.

Your answer: _____

67. inductive-reasoning-s07-q07

A student notices she scored higher on every quiz taken after at least eight hours' sleep than on any quiz taken after less. Which conclusion is best supported?

- A. For this student, more sleep has gone together with higher quiz scores.
- B. Sleep causes high marks for all students.
- C. She is guaranteed a top mark if she sleeps eight hours tonight.
- D. Quizzes taken while tired are unfairly difficult.

Your answer: _____

68. inductive-reasoning-s07-q08

A bag of counters is sampled 300 times (with the counter returned each time): red came out 148 times and blue 152 times. Which inference is most reasonable?

- A. The bag holds exactly 150 red and 150 blue counters.
- B. The bag likely holds red and blue in roughly equal numbers.
- C. The next draw must be red to balance the counts.
- D. Blue counters are heavier than red ones.

Your answer: _____

69. inductive-reasoning-s07-q09

Across four separate climbs, a hiker recorded a temperature drop of about 1°C for every 150 metres of ascent. What should she expect for a 600-metre climb?

- A. A drop of exactly 4.0°C, guaranteed.
- B. A drop of about 2°C.
- C. A drop of roughly 4°C.
- D. No prediction is possible from her records.

Your answer: _____

70. inductive-reasoning-s07-q10

A library's logs show late returns happen most often for books borrowed on Fridays. The logs also show most books are borrowed on Fridays. Which point most weakens the rule 'Friday borrowing causes lateness'?

- A. Some late books were borrowed on Mondays.
- B. The library is closed on Sundays.
- C. Lateness is measured in whole days.
- D. Fridays supply most borrowings overall, so they would lead any count, including late returns, even with no special effect.

Your answer: _____

Grid and matrix patterns

Each grid follows row or column rules: recover them and fill the missing cell.

71. inductive-reasoning-s08-q01

A 3x3 grid reads: row 1: 1, 2, 3; row 2: 4, 5, 6; row 3: 7, 8, ?. What number completes it?

- A. 6
- B. 8
- C. 10
- D. 9

Your answer: _____

72. inductive-reasoning-s08-q02

A 3x3 grid reads: row 1: 2, 5, 7; row 2: 3, 6, 9; row 3: 4, 7, ?. What number completes it?

- A. 10
- B. 11
- C. 12
- D. 28

Your answer: _____

73. inductive-reasoning-s08-q03

A 3x3 grid reads: row 1: 2, 3, 5; row 2: 4, 6, 10; row 3: 8, 12, ?. What number completes it?

- A. 20
- B. 15
- C. 24
- D. 18

Your answer: _____

74. inductive-reasoning-s08-q04

A 3x3 grid reads: row 1: 2, 3, 6; row 2: 4, 2, 8; row 3: 3, 5, ?. What number completes it?

- A. 8
- B. 12
- C. 15
- D. 35

Your answer: _____

75. inductive-reasoning-s08-q05

A 3x3 grid of shaded squares reads: row 1: white, grey, black; row 2: black, white, grey; row 3: grey, ?, white. What shade fills the missing cell?

- A. White
- B. Black
- C. Grey
- D. Any shade fits

Your answer: _____

76. inductive-reasoning-s08-q06

A 3x3 grid reads: row 1: 4, 9, 2; row 2: 3, 5, 7; row 3: 8, 1, ?. What number completes it?

- A. 5
- B. 7
- C. 4
- D. 6

Your answer: _____

77. inductive-reasoning-s08-q07

A 3x3 grid reads: row 1: 1, 2, 3; row 2: 2, 4, 7; row 3: 3, 7, ?. What number completes it?

- A. 10
- B. 12
- C. 14
- D. 16

Your answer: _____

78. inductive-reasoning-s08-q08

A 3x3 grid of letters reads: row 1: A, D, G; row 2: B, E, H; row 3: C, F, ?. What letter completes it?

- A. I
- B. J
- C. K
- D. H

Your answer: _____

79. inductive-reasoning-s08-q09

A 2x2 grid reads: top row: 6 then 3; bottom row: 10 then ?. What number completes it?

- A. 7
- B. 5
- C. 20
- D. 8

Your answer: _____

80. inductive-reasoning-s08-q10

A 3x3 grid reads: row 1: 9, 4, 5; row 2: 12, 5, 7; row 3: 15, 6, ?. What number completes it?

- A. 8
- B. 11
- C. 10
- D. 9

Your answer: _____

Rule discovery: function machines and codes

Infer the hidden rule that turns each input into its output, then apply it to the new case.

81. inductive-reasoning-s09-q01

A machine turns 3 into 7, 5 into 11, and 8 into 17. What does it turn 10 into?

- A. 21
- B. 20
- C. 19
- D. 25

Your answer: _____

82. inductive-reasoning-s09-q02

A machine turns 4 into 2, 10 into 5, and 16 into 8. What does it turn 26 into?

- A. 24
- B. 52
- C. 12
- D. 13

Your answer: _____

83. inductive-reasoning-s09-q03

In a code, LAMP is written as MBNQ. Using the same code, how is GATE written?

- A. FZSD
- B. HBUF
- C. HAUE
- D. GBTF

Your answer: _____

84. inductive-reasoning-s09-q04

A machine turns 2 into 3, 3 into 5, 5 into 9, and 6 into 11. What does it turn 9 into?

- A. 15
- B. 16
- C. 17
- D. 18

Your answer: _____

85. inductive-reasoning-s09-q05

A code maps 1 to A, 4 to D, and 7 to G. What letter does the same code map 11 to?

- A. K
- B. J
- C. L
- D. I

Your answer: _____

86. inductive-reasoning-s09-q06

A machine turns 5 into 30, 7 into 42, and 9 into 54. What does it turn 11 into?

- A. 60
- B. 72
- C. 55
- D. 66

Your answer: _____

87. inductive-reasoning-s09-q07

A code turns NET into TEN, RAW into WAR, and PIN into NIP. What does it turn BUS into?

- A. USB
- B. BSU
- C. SUB
- D. SBU

Your answer: _____

88. inductive-reasoning-s09-q08

A machine turns 2 into 8, 3 into 27, and 4 into 64. What does it turn 5 into?

- A. 100
- B. 125
- C. 75
- D. 625

Your answer: _____

89. inductive-reasoning-s09-q09

A machine turns 3 into 10, 6 into 19, and 10 into 31. What does it turn 12 into?

- A. 37
- B. 36
- C. 41
- D. 34

Your answer: _____

90. inductive-reasoning-s09-q10

A machine turns 23 into 5, 47 into 11, 65 into 11, and 81 into 9. What does it turn 76 into?

- A. 6
- B. 11
- C. 76
- D. 13

Your answer: _____

Extended extrapolation and inductive strength

These items combine several inductive steps: extrapolate carefully and judge how strong each inference really is.

91. inductive-reasoning-s10-q01

What is the next number in the sequence 4, 6, 10, 18, 34, ...?

- A. 62
- B. 66
- C. 68
- D. 70

Your answer: _____

92. inductive-reasoning-s10-q02

What is the next number in the sequence 2, 6, 12, 20, 30, ...?

- A. 40
- B. 36
- C. 42
- D. 44

Your answer: _____

93. inductive-reasoning-s10-q03

Which of these generalisations rests on the strongest inductive evidence?

- A. A random sample of 1,000 households across a city found 90% recycle weekly, so most households in that city recycle weekly.
- B. Three neighbours on one street recycle, so the whole country recycles.
- C. One street's recycling bins were full on Monday, so everyone recycles.
- D. A recycling firm's advert says most people recycle, so most people do.

Your answer: _____

94. inductive-reasoning-s10-q04

A seedling grew 2 cm in week one, 4 cm in week two, and 8 cm in week three. Someone predicts it will grow 256 cm in week eight by continuing the doubling. What is the main inductive weakness of this prediction?

- A. The arithmetic of the doubling is wrong.
- B. Three weeks is an unusually large sample.
- C. Growth cannot be measured in centimetres.
- D. It assumes a short-run pattern will continue indefinitely without limit.

Your answer: _____

95. inductive-reasoning-s10-q05

A sequence of pairs runs (1, 1), (2, 4), (3, 9), (4, 16), (?, 36). What is the missing first number?

- A. 5
- B. 18

- C. 6
- D. 7

Your answer: _____

96. inductive-reasoning-s10-q06

What is the next number in the sequence 3, 4, 6, 8, 12, 14, 18, 20, ...?

- A. 22
- B. 24
- C. 26
- D. 21

Your answer: _____

97. inductive-reasoning-s10-q07

Researchers have examined 40 beetles near a cave's entrance and all were blind. Which additional observation would most strengthen the generalisation 'all the beetles in this cave are blind'?

- A. Re-examining the same 40 beetles a second time.
- B. Reading that beetles in other caves are often blind.
- C. Counting the legs of the beetles already collected.
- D. Sampling beetles from deep, unexplored parts of the cave and finding them blind too.

Your answer: _____

98. inductive-reasoning-s10-q08

What comes next in the sequence Z1, X2, V4, T8, ...?

- A. R16
- B. S16
- C. R12
- D. Q16

Your answer: _____

99. inductive-reasoning-s10-q09

What is the next number in the sequence 1, 2, 6, 24, 120, ...?

- A. 600
- B. 720
- C. 620
- D. 840

Your answer: _____

100. inductive-reasoning-s10-q10

A sequence runs 2, 4, 8, 14, 22. Which rule fits every step of the sequence?

- A. Each term is double the previous term.
- B. Each term adds 2 to the previous term.

- C. The amount added grows by 2 each step.
- D. Each term is its position number squared.

Your answer: _____

Authored hints

This cognitive practice source does not publish authored hints. Every item is listed as missing a hint, and no hint text is generated or inferred.

100 worksheet items do not have an authored hint. No hint text was generated for them.

Answer key

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Inductive reasoning: patterns, rules, and generalisation: open practice pack answer key

Item	Choice	Answer
inductive-reasoning-s01-q01	B	10
inductive-reasoning-s01-q02	C	25
inductive-reasoning-s01-q03	D	48
inductive-reasoning-s01-q04	A	8
inductive-reasoning-s01-q05	A	25
inductive-reasoning-s01-q06	C	14
inductive-reasoning-s01-q07	B	4
inductive-reasoning-s01-q08	D	16
inductive-reasoning-s01-q09	A	56
inductive-reasoning-s01-q10	B	35
inductive-reasoning-s02-q01	C	I
inductive-reasoning-s02-q02	A	R
inductive-reasoning-s02-q03	B	N
inductive-reasoning-s02-q04	D	EV
inductive-reasoning-s02-q05	C	P
inductive-reasoning-s02-q06	B	OP
inductive-reasoning-s02-q07	A	F
inductive-reasoning-s02-q08	C	J
inductive-reasoning-s02-q09	D	I9
inductive-reasoning-s02-q10	B	KN
inductive-reasoning-s03-q01	D	Triangle
inductive-reasoning-s03-q02	A	?
inductive-reasoning-s03-q03	C	Down
inductive-reasoning-s03-q04	B	9
inductive-reasoning-s03-q05	A	Small black square

inductive-reasoning-s03-q06	D	A heptagon (7 sides)
inductive-reasoning-s03-q07	C	?????
inductive-reasoning-s03-q08	A	Bottom-left
inductive-reasoning-s03-q09	B	5 triangles
inductive-reasoning-s03-q10	D	The hexagon with 7 dots
inductive-reasoning-s04-q01	C	100
inductive-reasoning-s04-q02	D	orange
inductive-reasoning-s04-q03	B	35
inductive-reasoning-s04-q04	A	NPS
inductive-reasoning-s04-q05	C	(5, 6)
inductive-reasoning-s04-q06	D	tiles
inductive-reasoning-s04-q07	B	53
inductive-reasoning-s04-q08	C	(4, 8, 12)
inductive-reasoning-s04-q09	A	14:14
inductive-reasoning-s04-q10	D	(7, 11, 17)
inductive-reasoning-s05-q01	A	14
inductive-reasoning-s05-q02	B	M
inductive-reasoning-s05-q03	C	wolf
inductive-reasoning-s05-q04	D	49
inductive-reasoning-s05-q05	B	8
inductive-reasoning-s05-q06	A	MN
inductive-reasoning-s05-q07	D	8
inductive-reasoning-s05-q08	B	13
inductive-reasoning-s05-q09	A	6
inductive-reasoning-s05-q10	C	EPH
inductive-reasoning-s06-q01	B	40
inductive-reasoning-s06-q02	C	8
inductive-reasoning-s06-q03	D	14
inductive-reasoning-s06-q04	A	G
inductive-reasoning-s06-q05	C	27
inductive-reasoning-s06-q06	D	13
inductive-reasoning-s06-q07	B	16
inductive-reasoning-s06-q08	C	T
inductive-reasoning-s06-q09	A	17
inductive-reasoning-s06-q10	D	6.75
inductive-reasoning-s07-q01	A	Swans at this lake are usually white.
inductive-reasoning-s07-q02	C	At this bakery, rainy Saturdays have been associated with higher rye sales.
inductive-reasoning-s07-q03	B	Machine B's output showed a higher fault rate in these samples.
inductive-reasoning-s07-q04	D	In this garden's trial, compost went together with taller growth.

inductive-reasoning-s07-q05	A	The 08:15 is likely, though not certain, to be late again.
inductive-reasoning-s07-q06	C	The sample may not represent afternoon or weekend customers.
inductive-reasoning-s07-q07	A	For this student, more sleep has gone together with higher quiz scores.
inductive-reasoning-s07-q08	B	The bag likely holds red and blue in roughly equal numbers.
inductive-reasoning-s07-q09	C	A drop of roughly 4°C.
inductive-reasoning-s07-q10	D	Fridays supply most borrowings overall, so they would lead any count, including late returns, even with no special effect.
inductive-reasoning-s08-q01	D	9
inductive-reasoning-s08-q02	B	11
inductive-reasoning-s08-q03	A	20
inductive-reasoning-s08-q04	C	15
inductive-reasoning-s08-q05	B	Black
inductive-reasoning-s08-q06	D	6
inductive-reasoning-s08-q07	C	14
inductive-reasoning-s08-q08	A	I
inductive-reasoning-s08-q09	B	5
inductive-reasoning-s08-q10	D	9
inductive-reasoning-s09-q01	A	21
inductive-reasoning-s09-q02	D	13
inductive-reasoning-s09-q03	B	HBUF
inductive-reasoning-s09-q04	C	17
inductive-reasoning-s09-q05	A	K
inductive-reasoning-s09-q06	D	66
inductive-reasoning-s09-q07	C	SUB
inductive-reasoning-s09-q08	B	125
inductive-reasoning-s09-q09	A	37
inductive-reasoning-s09-q10	D	13
inductive-reasoning-s10-q01	B	66
inductive-reasoning-s10-q02	C	42
inductive-reasoning-s10-q03	A	A random sample of 1,000 households across a city found 90% recycle weekly, so most households in that city recycle weekly.
inductive-reasoning-s10-q04	D	It assumes a short-run pattern will continue indefinitely without limit.
inductive-reasoning-s10-q05	C	6
inductive-reasoning-s10-q06	B	24
inductive-reasoning-s10-q07	D	Sampling beetles from deep, unexplored parts of the cave and finding them blind too.
inductive-reasoning-s10-q08	A	R16
inductive-reasoning-s10-q09	B	720
inductive-reasoning-s10-q10	C	The amount added grows by 2 each step.

Worked explanations

inductive-reasoning-s01-q01: Each term rises by 2, so the sequence continues $8 + 2 = 10$.

inductive-reasoning-s01-q02: The sequence adds 5 at every step: $20 + 5 = 25$.

inductive-reasoning-s01-q03: Each term is double the one before, so the next term is $24 \times 2 = 48$. Checking the rule against every given term protects you from guessing off just the last pair.

inductive-reasoning-s01-q04: The sequence falls by 3 each step: $11 - 3 = 8$.

inductive-reasoning-s01-q05: These are the square numbers $1^2, 2^2, 3^2, 4^2$, the next is $5^2 = 25$. When gaps keep widening, test whether the terms are squares or another named family.

inductive-reasoning-s01-q06: Each term adds 3: $11 + 3 = 14$.

inductive-reasoning-s01-q07: Each term is half the one before: $8 \div 2 = 4$.

inductive-reasoning-s01-q08: The gaps grow by one each time (+1, +2, +3, +4), so the next gap is +5: $11 + 5 = 16$. Writing out the differences is the quickest way to expose a hidden second-level rule.

inductive-reasoning-s01-q09: The amount subtracted shrinks by one each step (-10, -9, -8), so the next step is -7: $63 - 7 = 56$.

inductive-reasoning-s01-q10: These are the multiples of 7 in order, so the next is $7 \times 5 = 35$.

inductive-reasoning-s02-q01: The sequence skips one letter each step (two places forward), so after G comes I.

inductive-reasoning-s02-q02: Each step moves two letters backwards through the alphabet: T back two is R.

inductive-reasoning-s02-q03: Each letter sits three places after the previous one, and three past K is N. Converting letters to alphabet positions (2, 5, 8, 11) makes the +3 rule obvious.

inductive-reasoning-s02-q04: The first letter walks forward from A while the second walks backwards from Z, so the pair after DW joins E with V.

inductive-reasoning-s02-q05: The jump grows by one letter each time (+1, +2, +3, +4), so the next jump is five letters: K to P.

inductive-reasoning-s02-q06: Each pair is two neighbouring letters, and each pair starts three letters after the last (C, F, I, L, O), giving O followed by P.

inductive-reasoning-s02-q07: The steps alternate two forward, one back (A->C->B->D->C->E->D), so the next step is two forward: F. Alternating sequences reward tracking the pattern of moves, not just the letters.

inductive-reasoning-s02-q08: The jumps alternate direction and grow by one: +1, -2, +3, -4, +5, so the next move is -6, taking P (position 16) to J (position 10).

inductive-reasoning-s02-q09: The letters advance two at a time (A, C, E, G, I) and each number is that letter's alphabet position. The 9th letter is I, giving I9.

inductive-reasoning-s02-q10: In every conforming pair the second letter comes exactly two after the first (B->D, E->G, H->J, P->R); K to N is a three-letter jump.

inductive-reasoning-s03-q01: The three-shape unit circle–square–triangle repeats, and the second unit still needs its triangle.

inductive-reasoning-s03-q02: The repeating unit is star, star, dot. The seventh symbol starts a new unit, so the second star comes next.

inductive-reasoning-s03-q03: The arrow rotates a quarter turn clockwise each step, so after right it points down.

inductive-reasoning-s03-q04: The dot count climbs through the odd numbers, adding two each time: $7 + 2 = 9$.

inductive-reasoning-s03-q05: Size and colour change together in a two-step cycle, so a large white square is

always followed by a small black one.

inductive-reasoning-s03-q06: The side count rises by one with each figure, so a seven-sided shape follows the hexagon.

inductive-reasoning-s03-q07: Each group keeps its single white circle and gains one more black circle, so the next group has four black circles after the white one.

inductive-reasoning-s03-q08: The shading moves one quarter clockwise each step, so after bottom-right it reaches bottom-left.

inductive-reasoning-s03-q09: Two rules run together: the count rises by one each card while the shape alternates between triangle and square, so five triangles come next.

inductive-reasoning-s03-q10: The shared rule is that the dot count equals the number of sides, so a six-sided hexagon should carry six dots, not seven.

inductive-reasoning-s04-q01: 8, 64, and 216 are perfect cubes (2^3 , 4^3 , 6^3); 100 is a square but not a cube.

inductive-reasoning-s04-q02: The first three each contain a doubled letter (tt, ff, nn); orange has no repeated adjacent letters. When the odd one out isn't about meaning, check the words' structure.

inductive-reasoning-s04-q03: 27, 45, and 63 are all multiples of 9; dividing 35 by 9 leaves a remainder.

inductive-reasoning-s04-q04: In the other groups each letter steps forward two places (B–D–F, H–J–L, P–R–T); N–P–S ends with a three-letter jump.

inductive-reasoning-s04-q05: Every other pair sums to 10; $5 + 6$ makes 11.

inductive-reasoning-s04-q06: Level, civic, and rotor read the same forwards and backwards (palindromes); tiles does not.

inductive-reasoning-s04-q07: 46, 64, and 82 each have digits that sum to ten; $5 + 3$ gives only eight. Digit sums are a classic hidden property worth testing when face value shows no pattern.

inductive-reasoning-s04-q08: In the other triples each number doubles the one before; 8 to 12 adds 4 instead of doubling.

inductive-reasoning-s04-q09: Read as digit strings, 10:01, 12:21, and 15:51 are palindromes (1001, 1221, 1551); 1414 reversed gives 4141, so it breaks the rule.

inductive-reasoning-s04-q10: In the conforming groups the third number is the sum of the first two ($2+3=5$, $5+7=12$, $11+13=24$); $7 + 11$ is 18, not 17.

inductive-reasoning-s05-q01: 6 is double 3, so apply the same doubling: $7 \times 2 = 14$.

inductive-reasoning-s05-q02: F sits three letters after C, and three letters after J is M.

inductive-reasoning-s05-q03: The second word spells the first backwards, and flow reversed is wolf. Watch for near-misses that merely rearrange the same letters.

inductive-reasoning-s05-q04: Both example pairs square the first number ($4^2 = 16$, $5^2 = 25$), multiplying by 4 would fail the second pair, so $7^2 = 49$. A second example exists precisely to rule out rival rules.

inductive-reasoning-s05-q05: The second number is the square root of the first, and the square root of 64 is 8.

inductive-reasoning-s05-q06: Each letter of the pair moves three places forward: J becomes M and K becomes N.

inductive-reasoning-s05-q07: The second value is the reciprocal of the first, and the reciprocal of $1/8$ is 8.

inductive-reasoning-s05-q08: The single number is the sum of the pair: $7 + 6 = 13$.

inductive-reasoning-s05-q09: The number counts the shape's sides: a triangle has three and a hexagon has six.

inductive-reasoning-s05-q10: Every letter shifts one place forward (C→D, A→B, T→U), so D→E, O→P,

G->H. Decode the rule letter by letter rather than trusting the overall look of an option.

inductive-reasoning-s06-q01: Two strands interleave (1, 2, 3, 4 and 10, 20, 30), and the next position belongs to the tens strand: 40.

inductive-reasoning-s06-q02: Odd positions climb by two (2, 4, 6, 8) while even positions fall by ten; the seventh term continues the climbing strand.

inductive-reasoning-s06-q03: The steps alternate +1, +2, +1, +2; after 12 the next step is +2, giving 14.

inductive-reasoning-s06-q04: Letters skipping one place (A, C, E, G) alternate with even numbers, and the next position is a letter.

inductive-reasoning-s06-q05: One strand falls by five (40, 35, 30, 25) while the other triples (1, 3, 9); the next term triples again: $9 \times 3 = 27$.

inductive-reasoning-s06-q06: Each term is the sum of the two before it: $5 + 8 = 13$. When neither differences nor ratios settle, try combining earlier terms.

inductive-reasoning-s06-q07: The even positions double each time (2, 4, 8, 16), while the falling strand shrinks its step by one (-10, -9, -8); the next position belongs to the doubling strand.

inductive-reasoning-s06-q08: The letter strand's jump grows by one each time (J->K is one, K->M two, M->P three), so the next letter is four past P: T.

inductive-reasoning-s06-q09: Both interleaved strands rise by two (6, 8, 10, 12 and 11, 13, 15); the next term continues the second strand: 17.

inductive-reasoning-s06-q10: The steps alternate multiply-by-three and halve ($2 \times 3 = 6$, $6 \div 2 = 3$, $3 \times 3 = 9$, $9 \div 2 = 4.5$); after 13.5 comes halving: 6.75.

inductive-reasoning-s07-q01: Induction supports a probable, local generalisation: many consistent sightings at one lake. Claims about all swans, or about what cannot happen, outrun the evidence.

inductive-reasoning-s07-q02: Repeated pairing of rain and higher sales supports an association at this bakery; claiming a cause, or extending the rule to every town, needs far more evidence.

inductive-reasoning-s07-q03: Samples justify comparing observed rates, nothing stronger. They cannot certify a zero-fault machine or predict any single bolt with certainty.

inductive-reasoning-s07-q04: A consistent difference in one trial supports a local association. Universal or causal claims need repeated trials under varied, controlled conditions.

inductive-reasoning-s07-q05: A short consistent run raises the probability that the pattern repeats, but induction never turns 'has happened five times' into a guarantee or an exact figure.

inductive-reasoning-s07-q06: An inductive generalisation is only as good as its sample. Times of day that were never sampled may behave differently, so the conclusion should stay limited to weekday mornings.

inductive-reasoning-s07-q07: Personal records support a personal association. They cannot establish a universal law about all students, nor promise any particular future result.

inductive-reasoning-s07-q08: Near-equal frequencies in a large sample point to roughly equal proportions: an estimate, not an exact count. Expecting the next draw to 'balance things out' is the gambler's fallacy.

inductive-reasoning-s07-q09: 600 metres is four steps of 150, so about four degrees of cooling. The word 'roughly' matters, because an induced rate supports an estimate rather than a promise.

inductive-reasoning-s07-q10: When one category dominates the data, its dominance alone can explain its lead in any subcategory. Comparing rates (late returns per borrowing) rather than raw counts is the fix.

inductive-reasoning-s08-q01: The cells count upwards by one, left to right and row by row, so the final cell is 9.

inductive-reasoning-s08-q02: In every row the third number is the sum of the first two ($2+5=7$, $3+6=9$), so $4 + 7 = 11$.

inductive-reasoning-s08-q03: Every number doubles as you move down its column (2->4->8, 3->6->12), so the last column runs 5 -> 10 -> 20.

inductive-reasoning-s08-q04: Each row's third number is the product of the first two ($2 \times 3 = 6$, $4 \times 2 = 8$), so $3 \times 5 = 15$. Test sum, difference, and product rules against every complete row before answering.

inductive-reasoning-s08-q05: Every row and every column uses each shade exactly once, a Latin-square rule, and black is the only shade missing from both the third row and the middle column.

inductive-reasoning-s08-q06: Each complete row sums to 15 ($4+9+2$ and $3+5+7$), so the last row needs $15 - 8 - 1 = 6$.

inductive-reasoning-s08-q07: Away from the edges, each cell equals the cell above it plus the cell to its left ($4 = 2 + 2$, $7 = 3 + 4$, $7 = 4 + 3$), so the corner is $7 + 7 = 14$.

inductive-reasoning-s08-q08: The columns list the alphabet in order (A-B-C, D-E-F, G-H-...), so the final column ends with I.

inductive-reasoning-s08-q09: In each row the right-hand number is half the left-hand one: $10 \div 2 = 5$.

inductive-reasoning-s08-q10: Each row's third number is the first minus the second ($9-4=5$, $12-5=7$), giving $15 - 6 = 9$, and the final column's own climb (5, 7, 9) confirms it. Converging rules are strong evidence you have the right answer.

inductive-reasoning-s09-q01: Each output is double the input plus one ($3 \rightarrow 7$, $5 \rightarrow 11$, $8 \rightarrow 17$), so $10 \times 2 + 1 = 21$. Always confirm a candidate rule against every example pair, not just the first.

inductive-reasoning-s09-q02: Every output is half its input, so $26 \div 2 = 13$.

inductive-reasoning-s09-q03: Each letter shifts one place forward (L->M, A->B, M->N, P->Q), so GATE becomes HBUF.

inductive-reasoning-s09-q04: Each output is double the input minus one, a rule all four examples satisfy, so $9 \times 2 - 1 = 17$.

inductive-reasoning-s09-q05: Each number maps to the letter at that position of the alphabet, and the 11th letter is K.

inductive-reasoning-s09-q06: Every output is six times its input, so $11 \times 6 = 66$.

inductive-reasoning-s09-q07: The code reverses the word's letters, so BUS becomes SUB.

inductive-reasoning-s09-q08: Each output is the input cubed ($2^3=8$, $3^3=27$, $4^3=64$), so $5^3 = 125$.

inductive-reasoning-s09-q09: Each output is triple the input plus one ($3 \rightarrow 10$, $6 \rightarrow 19$, $10 \rightarrow 31$), so $12 \times 3 + 1 = 37$.

inductive-reasoning-s09-q10: Each output is the sum of the input's digits ($2+3=5$, $4+7=11$, $6+5=11$, $8+1=9$), so $7 + 6 = 13$. When arithmetic on the whole number fails, try operating on its digits.

inductive-reasoning-s10-q01: The gaps double each time (2, 4, 8, 16), so the next gap is 32: $34 + 32 = 66$.

inductive-reasoning-s10-q02: The gaps rise by two each step (4, 6, 8, 10), so the next gap is 12: $30 + 12 = 42$. Equivalently, the n th term is $n \times (n + 1)$.

inductive-reasoning-s10-q03: Inductive strength grows with sample size, random selection, and a conclusion that stays close to the evidence. Tiny samples, single snapshots, and interested sources all weaken an inference.

inductive-reasoning-s10-q04: Short runs fit many possible rules, and real processes meet limits that flatten early trends. Extending a three-point pattern five more steps is the classic extrapolation trap.

inductive-reasoning-s10-q05: In every pair the second number is the square of the first, and 36 is 6 squared. Note the pattern skips a value. The rule linking the pair matters, not the row count.

inductive-reasoning-s10-q06: Each term is one more than a prime number (2, 3, 5, 7, 11, 13, 17, 19), so the next is $23 + 1 = 24$. Mapping an odd-looking sequence onto a familiar number family is a powerful inductive

move.

inductive-reasoning-s10-q07: Induction strengthens most when new evidence comes from varied, previously unsampled parts of the population, rechecking the same cases adds almost nothing.

inductive-reasoning-s10-q08: Two rules run in parallel: the letter steps back two places (Z, X, V, T, R) while the number doubles (1, 2, 4, 8, 16).

inductive-reasoning-s10-q09: The multiplier grows by one at each step (x2, x3, x4, x5), so the next step is x6: $120 \times 6 = 720$.

inductive-reasoning-s10-q10: Testing candidates against all the data is the heart of induction: doubling fits only the first three terms, but the growing-gap rule (+2, +4, +6, +8) survives every step.

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