

Brain Teasers - Page 1 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

1. Changing-Step Sequence

Each jump grows by 2. What number comes next?

3 > 5 > 9 > 15 > 23 > ?

WARM-UP

2. Changing-Step Sequence

Each jump grows by 1. What number comes next?

8 > 11 > 15 > 20 > 26 > ?

WARM-UP

3. Changing-Step Sequence

Each jump grows by 3. What number comes next?

12 > 16 > 23 > 33 > 46 > ?

Brain Teasers - Page 2 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

4. Changing-Step Sequence

Each jump grows by 2. What number comes next?

5 > 10 > 17 > 26 > 37 > ?

WARM-UP

5. Changing-Step Sequence

Each jump grows by 4. What number comes next?

20 > 22 > 28 > 38 > 52 > ?

WARM-UP

6. Changing-Step Sequence

Each jump grows by 3. What number comes next?

7 > 13 > 22 > 34 > 49 > ?

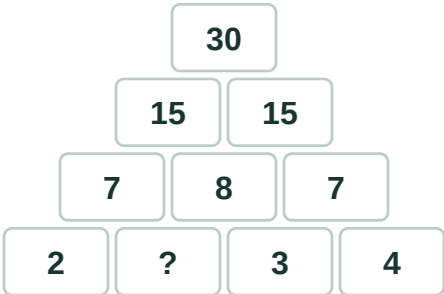
Brain Teasers - Page 3 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

7. Sum Pyramid

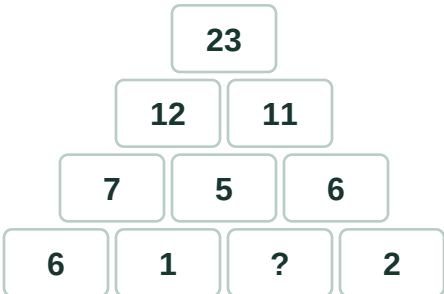
Each brick equals the sum of the two below it. Fill the blank.



WARM-UP

8. Sum Pyramid

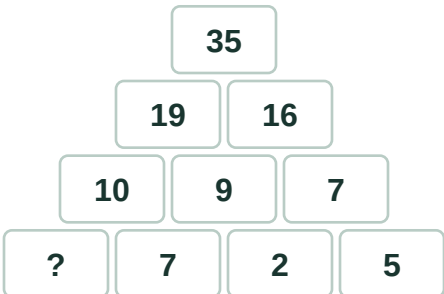
Each brick equals the sum of the two below it. Fill the blank.



WARM-UP

9. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.



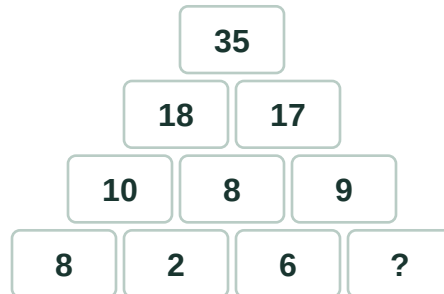
Brain Teasers - Page 4 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

10. Sum Pyramid

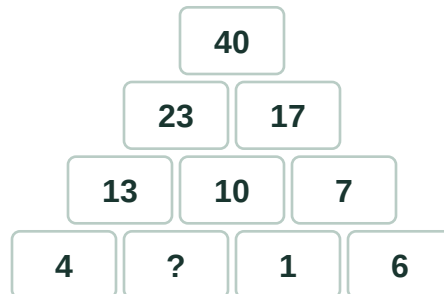
Each brick equals the sum of the two below it. Fill the blank.



WARM-UP

11. Sum Pyramid

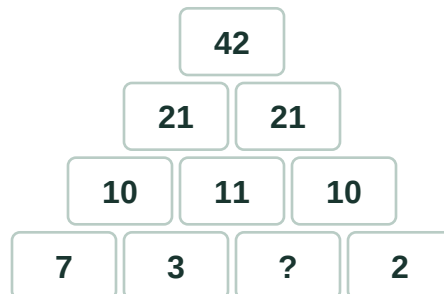
Each brick equals the sum of the two below it. Fill the blank.



WARM-UP

12. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.



Brain Teasers - Page 5 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

13. Balance Equations

Each symbol has a fixed whole-number value. Find the circle.



$$2 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 14$$

$$1 \times \text{CIRCLE} + 2 \times \text{SQUARE} = 19$$



LOGIC BUILDER

14. Balance Equations

Each symbol has a fixed whole-number value. Find the square.



$$1 \times \text{CIRCLE} + 2 \times \text{SQUARE} = 17$$

$$3 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 31$$



LOGIC BUILDER

15. Balance Equations

Each symbol has a fixed whole-number value. Find the circle.



$$2 \times \text{CIRCLE} + 3 \times \text{SQUARE} = 43$$

$$1 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 16$$



Brain Teasers - Page 6 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

16. Balance Equations

Each symbol has a fixed whole-number value. Find the square.



$$1 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 18$$

$$2 \times \text{CIRCLE} + 3 \times \text{SQUARE} = 42$$



LOGIC BUILDER

17. Balance Equations

Each symbol has a fixed whole-number value. Find the circle.



$$3 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 34$$

$$1 \times \text{CIRCLE} + 2 \times \text{SQUARE} = 33$$



LOGIC BUILDER

18. Balance Equations

Each symbol has a fixed whole-number value. Find the square.



$$1 \times \text{CIRCLE} + 3 \times \text{SQUARE} = 44$$

$$2 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 38$$



Brain Teasers - Page 7 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

19. Count Every Rectangle

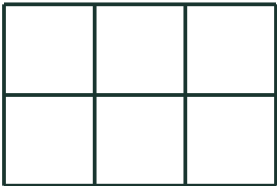
How many rectangles of every size are in this grid? Squares count too.



LOGIC BUILDER

20. Count Every Rectangle

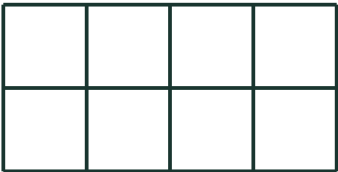
How many rectangles of every size are in this grid? Squares count too.



LOGIC BUILDER

21. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.



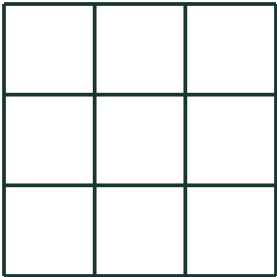
Brain Teasers - Page 8 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

22. Count Every Rectangle

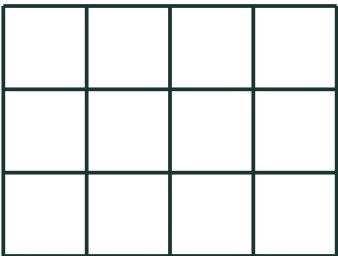
How many rectangles of every size are in this grid? Squares count too.



LOGIC BUILDER

23. Count Every Rectangle

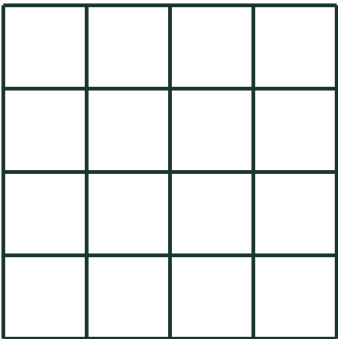
How many rectangles of every size are in this grid? Squares count too.



LOGIC BUILDER

24. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.



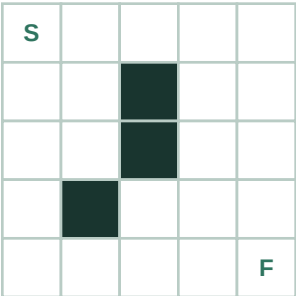
Brain Teasers - Page 9 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE

25. Route Counting

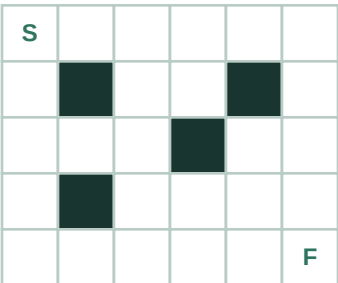
Move only right or down from S to F. Blocked cells cannot be entered. How many routes?



CHALLENGE

26. Route Counting

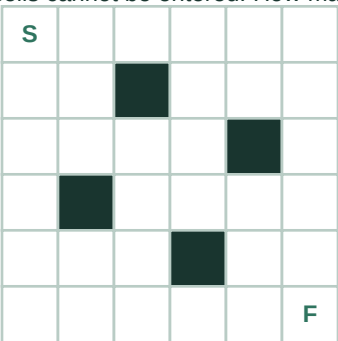
Move only right or down from S to F. Blocked cells cannot be entered. How many routes?



CHALLENGE

27. Route Counting

Move only right or down from S to F. Blocked cells cannot be entered. How many routes?



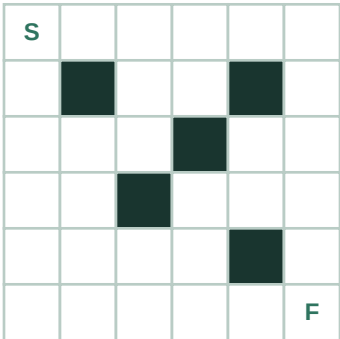
Brain Teasers - Page 10 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE

28. Route Counting

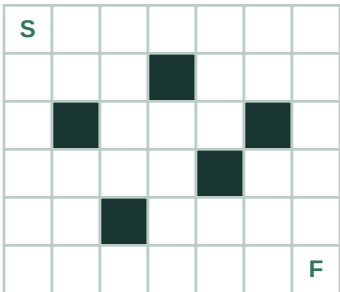
Move only right or down from S to F. Blocked cells cannot be entered. How many routes?



CHALLENGE

29. Route Counting

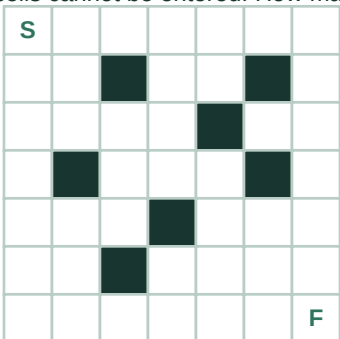
Move only right or down from S to F. Blocked cells cannot be entered. How many routes?



CHALLENGE

30. Route Counting

Move only right or down from S to F. Blocked cells cannot be entered. How many routes?



Brain Teasers - Page 11 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE

31. Ordering Constraints

Place A-E from left to right. Use every letter once.

- A is in position 3.
- B is somewhere before E.
- D is somewhere before C.
- C is in position 5.
- B is immediately before D.

1	2	3	4	5

CHALLENGE

32. Ordering Constraints

Place A-E from left to right. Use every letter once.

- E is in position 3.
- C is somewhere before B.
- A is somewhere before D.
- D is in position 5.
- C is immediately before A.

1	2	3	4	5

CHALLENGE

33. Ordering Constraints

Place A-E from left to right. Use every letter once.

- E is in position 3.
- D is somewhere before C.
- B is somewhere before A.
- A is in position 5.
- D is immediately before B.

1	2	3	4	5

Brain Teasers - Page 12 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE

34. Ordering Constraints

Place A-E from left to right. Use every letter once.

- A is in position 3.
- E is somewhere before D.
- C is somewhere before B.
- B is in position 5.
- E is immediately before C.

1	2	3	4	5

CHALLENGE

35. Ordering Constraints

Place A-E from left to right. Use every letter once.

- C is in position 3.
- A is somewhere before B.
- D is somewhere before E.
- E is in position 5.
- A is immediately before D.

1	2	3	4	5

CHALLENGE

36. Ordering Constraints

Place A-E from left to right. Use every letter once.

- B is in position 3.
- C is somewhere before A.
- E is somewhere before D.
- D is in position 5.
- C is immediately before E.

1	2	3	4	5

Answers - Page 1 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

1. Changing-Step Sequence

Each jump grows by 2. What number comes next?

3 > 5 > 9 > 15 > 23 > ?

Answer: 33

The jumps are 2, 4, 6, 8, 10; add 10 to 23 to get 33.

WARM-UP

2. Changing-Step Sequence

Each jump grows by 1. What number comes next?

8 > 11 > 15 > 20 > 26 > ?

Answer: 33

The jumps are 3, 4, 5, 6, 7; add 7 to 26 to get 33.

WARM-UP

3. Changing-Step Sequence

Each jump grows by 3. What number comes next?

12 > 16 > 23 > 33 > 46 > ?

Answer: 62

The jumps are 4, 7, 10, 13, 16; add 16 to 46 to get 62.

Answers - Page 2 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

4. Changing-Step Sequence

Each jump grows by 2. What number comes next?

5 > 10 > 17 > 26 > 37 > ?

Answer: 50

The jumps are 5, 7, 9, 11, 13; add 13 to 37 to get 50.

WARM-UP

5. Changing-Step Sequence

Each jump grows by 4. What number comes next?

20 > 22 > 28 > 38 > 52 > ?

Answer: 70

The jumps are 2, 6, 10, 14, 18; add 18 to 52 to get 70.

WARM-UP

6. Changing-Step Sequence

Each jump grows by 3. What number comes next?

7 > 13 > 22 > 34 > 49 > ?

Answer: 67

The jumps are 6, 9, 12, 15, 18; add 18 to 49 to get 67.

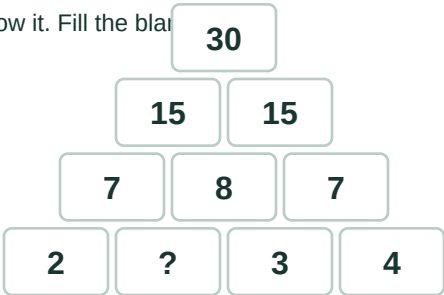
Answers - Page 3 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

7. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.

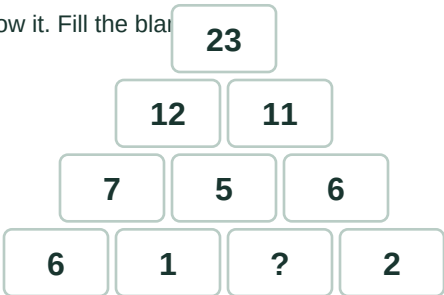


Answer: 5
Subtract the known neighbor from its sum brick: $8 - 3 = 5$. Fill bottom position 2, then add adjacent bricks to check the top 30.

WARM-UP

8. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.

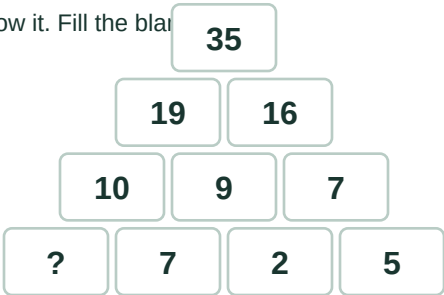


Answer: 4
Subtract the known neighbor from its sum brick: $6 - 2 = 4$. Fill bottom position 3, then add adjacent bricks to check the top 23.

WARM-UP

9. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.



Answer: 3
Subtract the known neighbor from its sum brick: $10 - 7 = 3$. Fill bottom position 1, then add adjacent bricks to check the top 35.

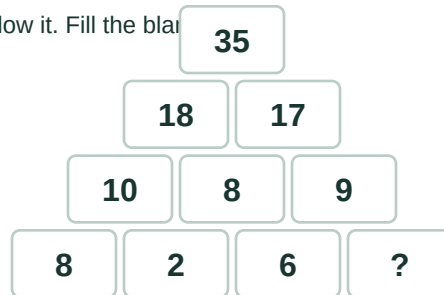
Answers - Page 4 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

WARM-UP

10. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.



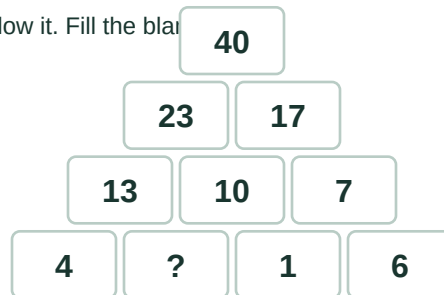
Answer: 3

Subtract the known neighbor from its sum brick: $9 - 6 = 3$. Fill bottom position 4, then add adjacent bricks to check the top 35.

WARM-UP

11. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.



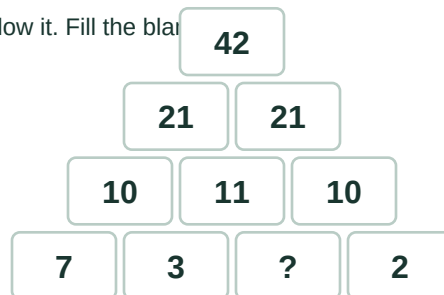
Answer: 9

Subtract the known neighbor from its sum brick: $10 - 1 = 9$. Fill bottom position 2, then add adjacent bricks to check the top 40.

WARM-UP

12. Sum Pyramid

Each brick equals the sum of the two below it. Fill the blank.



Answer: 8

Subtract the known neighbor from its sum brick: $10 - 2 = 8$. Fill bottom position 3, then add adjacent bricks to check the top 42.

Answers - Page 5 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

13. Balance Equations

Each symbol has a fixed whole-number value. Find the circle.



$$2 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 14$$

$$1 \times \text{CIRCLE} + 2 \times \text{SQUARE} = 19$$



Answer: 3

Multiply equation 1 by 2 and equation 2 by 1, then subtract: $3 \times \text{CIRCLE} = 9$, so $\text{CIRCLE} = 3$. Substitute into equation 1: $\text{SQUARE} = 8$.

LOGIC BUILDER

14. Balance Equations

Each symbol has a fixed whole-number value. Find the square.



$$1 \times \text{CIRCLE} + 2 \times \text{SQUARE} = 17$$

$$3 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 31$$



Answer: 4

Multiply equation 1 by 1 and equation 2 by 2, then subtract: $-5 \times \text{CIRCLE} = -45$, so $\text{CIRCLE} = 9$. Substitute into equation 1: $\text{SQUARE} = 4$.

LOGIC BUILDER

15. Balance Equations

Each symbol has a fixed whole-number value. Find the circle.



$$2 \times \text{CIRCLE} + 3 \times \text{SQUARE} = 43$$

$$1 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 16$$



Answer: 5

Multiply equation 1 by 1 and equation 2 by 3, then subtract: $-1 \times \text{CIRCLE} = -5$, so $\text{CIRCLE} = 5$. Substitute into equation 1: $\text{SQUARE} = 11$.

Answers - Page 6 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

16. Balance Equations

Each symbol has a fixed whole-number value. Find the square.



$$1 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 18$$

$$2 \times \text{CIRCLE} + 3 \times \text{SQUARE} = 42$$



Answer: 6

Multiply equation 1 by 3 and equation 2 by 1, then subtract: $1 \times \text{CIRCLE} = 12$, so $\text{CIRCLE} = 12$. Substitute into equation 1: $\text{SQUARE} = 6$.

LOGIC BUILDER

17. Balance Equations

Each symbol has a fixed whole-number value. Find the circle.



$$3 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 34$$

$$1 \times \text{CIRCLE} + 2 \times \text{SQUARE} = 33$$



Answer: 7

Multiply equation 1 by 2 and equation 2 by 1, then subtract: $5 \times \text{CIRCLE} = 35$, so $\text{CIRCLE} = 7$. Substitute into equation 1: $\text{SQUARE} = 13$.

LOGIC BUILDER

18. Balance Equations

Each symbol has a fixed whole-number value. Find the square.



$$1 \times \text{CIRCLE} + 3 \times \text{SQUARE} = 44$$

$$2 \times \text{CIRCLE} + 1 \times \text{SQUARE} = 38$$



Answer: 10

Multiply equation 1 by 1 and equation 2 by 3, then subtract: $-5 \times \text{CIRCLE} = -70$, so $\text{CIRCLE} = 14$. Substitute into equation 1: $\text{SQUARE} = 10$.

Answers - Page 7 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

19. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.



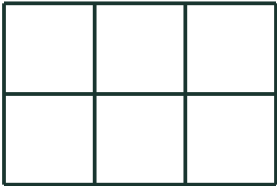
Answer: 10

Choose two of the 2 horizontal lines and two of the 5 vertical lines: $1 \times 10 = 10$.

LOGIC BUILDER

20. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.



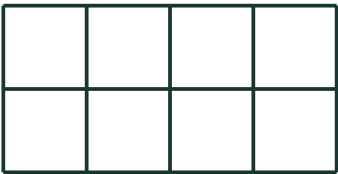
Answer: 18

Choose two of the 3 horizontal lines and two of the 4 vertical lines: $3 \times 6 = 18$.

LOGIC BUILDER

21. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.



Answer: 30

Choose two of the 3 horizontal lines and two of the 5 vertical lines: $3 \times 10 = 30$.

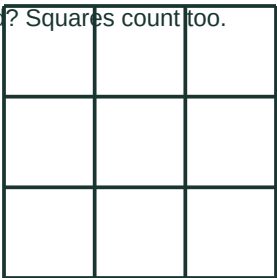
Answers - Page 8 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

LOGIC BUILDER

22. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.



Answer: 36
Choose two of the 4 horizontal lines and two of the 4 vertical lines: $6 \times 6 = 36$.

LOGIC BUILDER

23. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.

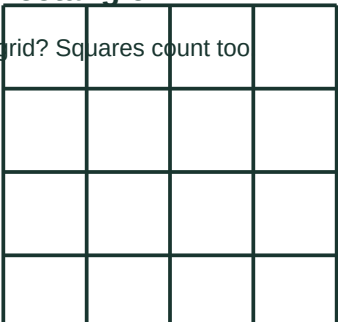


Answer: 60
Choose two of the 5 horizontal lines and two of the 5 vertical lines: $6 \times 10 = 60$.

LOGIC BUILDER

24. Count Every Rectangle

How many rectangles of every size are in this grid? Squares count too.



Answer: 100
Choose two of the 6 horizontal lines and two of the 6 vertical lines: $10 \times 10 = 100$.

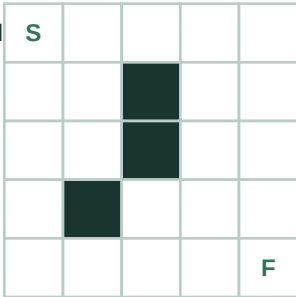
Answers - Page 9 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE

25. Route Counting

Move only right or down from S to F. Blocked cells are black. How many routes?

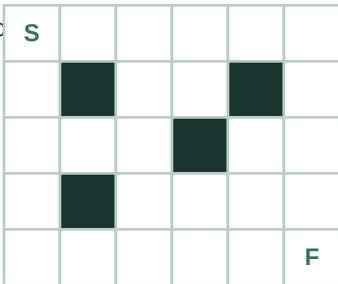


Answer: 6
Add the ways entering each open cell from above and left. The value at F is 6, so there are 6 legal routes.

CHALLENGE

26. Route Counting

Move only right or down from S to F. Blocked cells are black. How many routes?

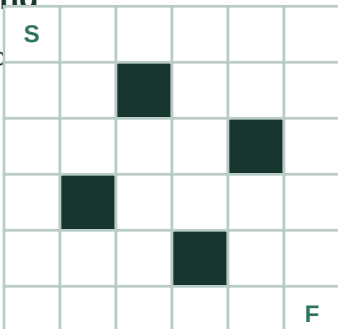


Answer: 10
Add the ways entering each open cell from above and left. The value at F is 10, so there are 10 legal routes.

CHALLENGE

27. Route Counting

Move only right or down from S to F. Blocked cells are black. How many routes?



Answer: 30
Add the ways entering each open cell from above and left. The value at F is 30, so there are 30 legal routes.

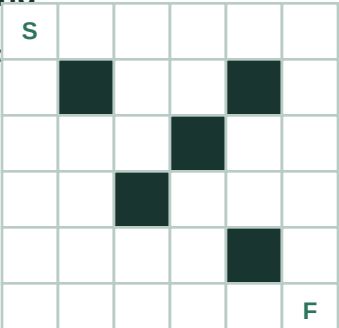
Answers - Page 10 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE

28. Route Counting

Move only right or down from S to F. Blocked cells are black. How many routes?

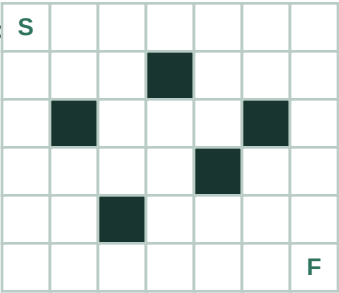


Answer: 11
Add the ways entering each open cell from above and left. The value at F is 11, so there are 11 legal routes.

CHALLENGE

29. Route Counting

Move only right or down from S to F. Blocked cells are black. How many routes?

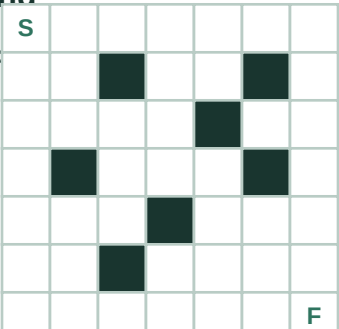


Answer: 34
Add the ways entering each open cell from above and left. The value at F is 34, so there are 34 legal routes.

CHALLENGE

30. Route Counting

Move only right or down from S to F. Blocked cells are black. How many routes?



Answer: 46
Add the ways entering each open cell from above and left. The value at F is 46, so there are 46 legal routes.

Answers - Page 11 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE

31. Ordering Constraints

Place A-E from left to right. Use every letter once.

- A is in position 3.
- B is somewhere before E.
- D is somewhere before C.
- C is in position 5.
- B is immediately before D.

1	2	3	4	5

Answer: B - D - A - E - C

Place A third and C fifth. The B-D pair must occupy slots 1-2, since B is before E. The remaining E goes fourth: B - D - A - E - C.

CHALLENGE

32. Ordering Constraints

Place A-E from left to right. Use every letter once.

- E is in position 3.
- C is somewhere before B.
- A is somewhere before D.
- D is in position 5.
- C is immediately before A.

1	2	3	4	5

Answer: C - A - E - B - D

Place E third and D fifth. The C-A pair must occupy slots 1-2, since C is before B. The remaining B goes fourth: C - A - E - B - D.

CHALLENGE

33. Ordering Constraints

Place A-E from left to right. Use every letter once.

- E is in position 3.
- D is somewhere before C.
- B is somewhere before A.
- A is in position 5.
- D is immediately before B.

1	2	3	4	5

Answer: D - B - E - C - A

Place E third and A fifth. The D-B pair must occupy slots 1-2, since D is before C. The remaining C goes fourth: D - B - E - C - A.

Answers - Page 12 of 12

Three original rule-based challenges. Write on the page, then use the matched answer section.

CHALLENGE 34. Ordering Constraints

Place A-E from left to right. Use every letter once.

- A is in position 3.
- E is somewhere before D.
- C is somewhere before B.
- B is in position 5.
- E is immediately before C.

1	2	3	4	5

Answer: E - C - A - D - B

Place A third and B fifth. The E-C pair must occupy slots 1-2, since E is before D. The remaining D goes fourth: E - C - A - D - B.

CHALLENGE 35. Ordering Constraints

Place A-E from left to right. Use every letter once.

- C is in position 3.
- A is somewhere before B.
- D is somewhere before E.
- E is in position 5.
- A is immediately before D.

1	2	3	4	5

Answer: A - D - C - B - E

Place C third and E fifth. The A-D pair must occupy slots 1-2, since A is before B. The remaining B goes fourth: A - D - C - B - E.

CHALLENGE 36. Ordering Constraints

Place A-E from left to right. Use every letter once.

- B is in position 3.
- C is somewhere before A.
- E is somewhere before D.
- D is in position 5.
- C is immediately before E.

1	2	3	4	5

Answer: C - E - B - A - D

Place B third and D fifth. The C-E pair must occupy slots 1-2, since C is before A. The remaining A goes fourth: C - E - B - A - D.