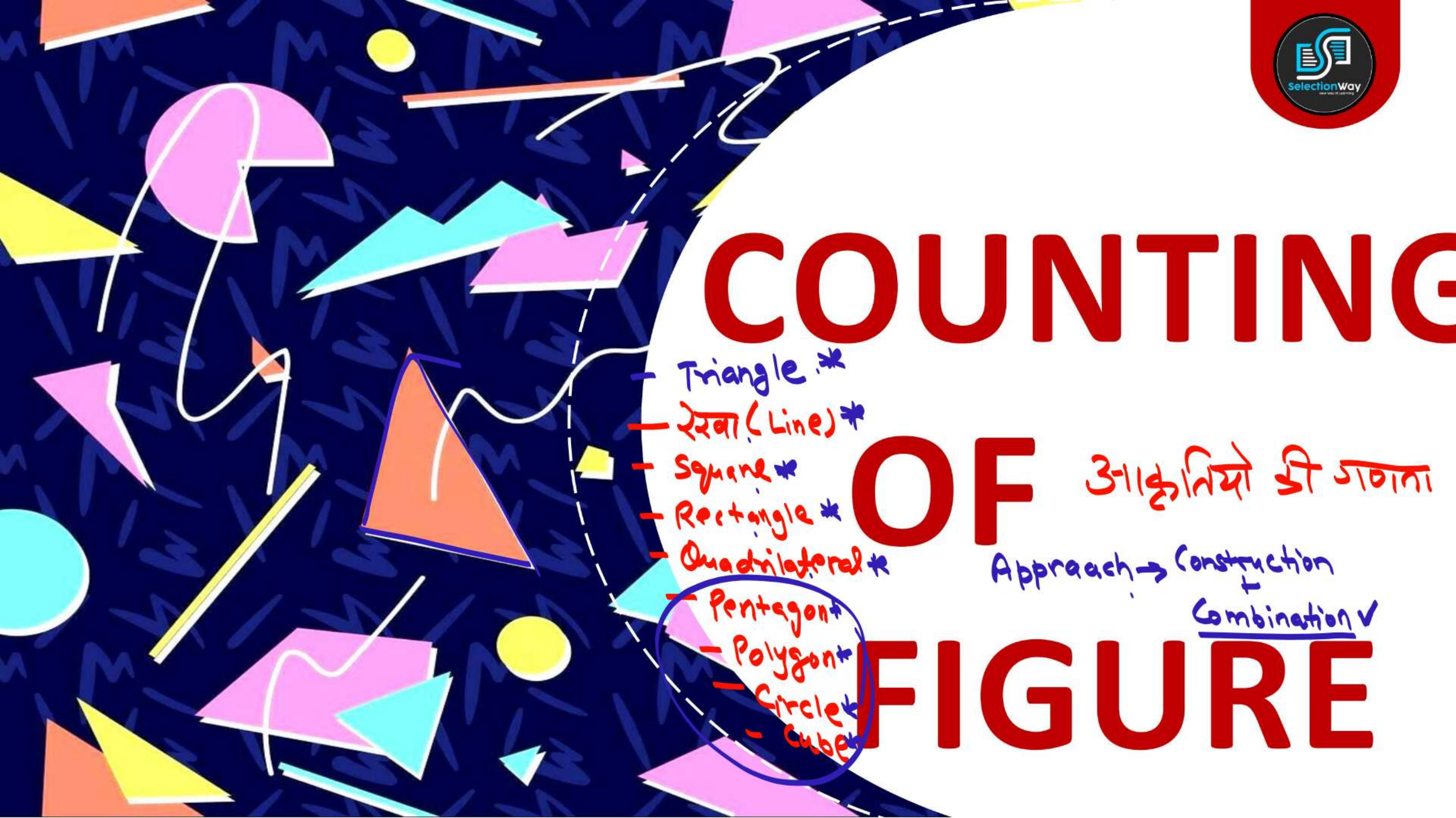
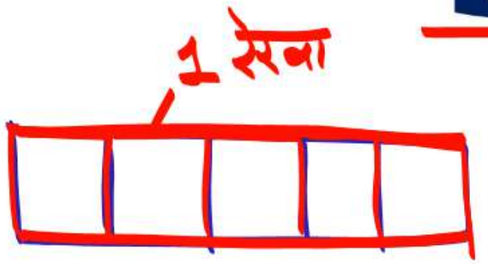
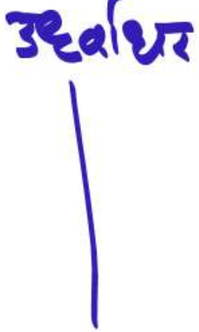

COUNTING
OF
FIGURE
आकृतियो की गणना
Approach → Construction
+
Combination
- Triangle *
- रेखा (Line) *
- Square *
- Rectangle *
- Quadrilateral *
- Pentagon *
- Polygon *
- Circle *
- Cube *

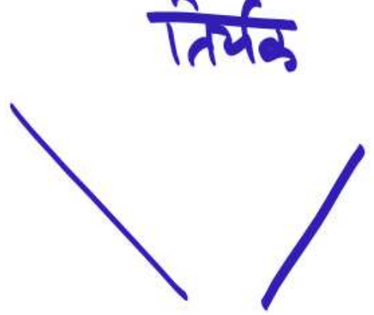
Counting of Straight Lines



रेखाओं की गणना

2+6+0
=8

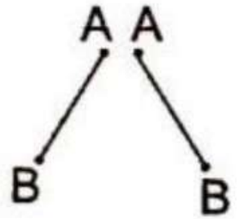




Count as follows

क्षैतिज
A. Horizontal line 

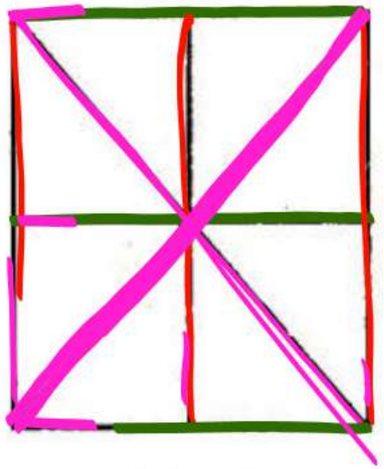
ऊर्ध्वाधर
B. Vertical line 

तिर्यक
C. Slant line 

Ex. Number of lines in the given figure?

H V T

3 + 3 + 2 = 8

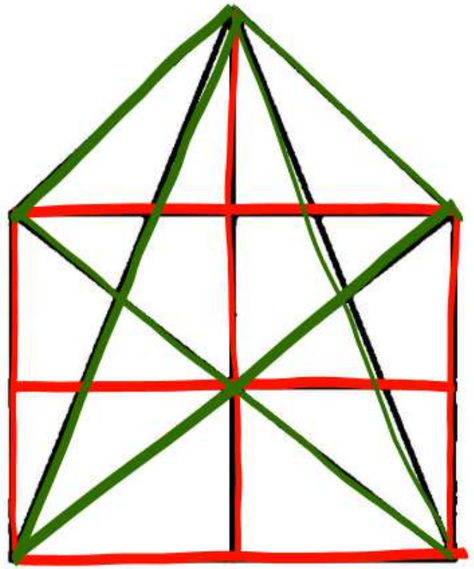


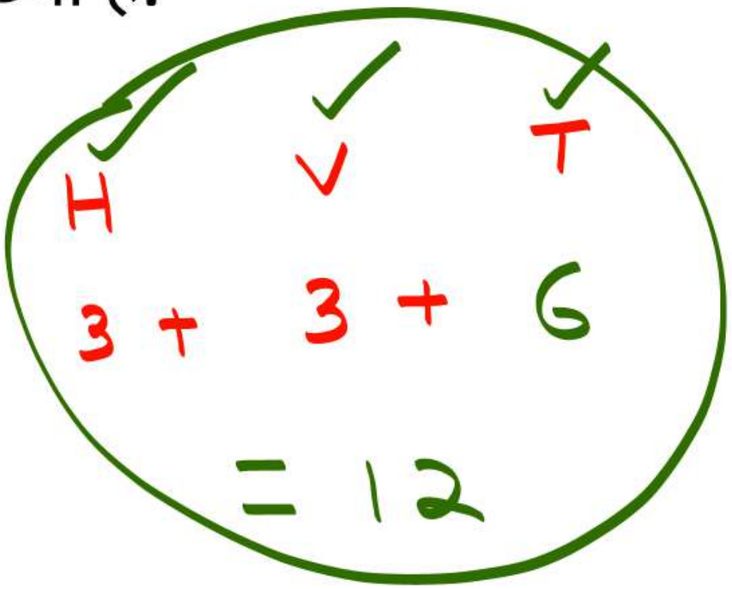
(a) 14 (b) 8 (c) 4 (d) 9

QUESTION 1

The number of straight lines in the figure is:

आकृति में सीधी रेखाओं की संख्या है:





(a) 10

(b) 11

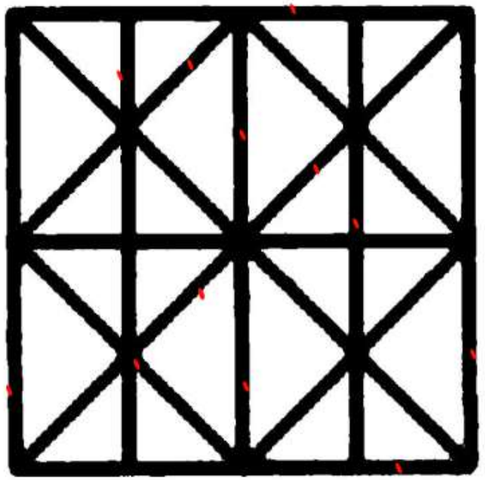
(c) 12

(d) 13

QUESTION 2

Find the minimum number of straight lines required to make the given figure.

दी गई आकृति को बनाने के लए आवश्यक न्यूनतम सीधी रेखाओं की संख्या ज्ञात कीजिए।



finger counting ✗

H V T
3 + 5 + 6
= 14

(a) 11

(b) 14

(c) 16

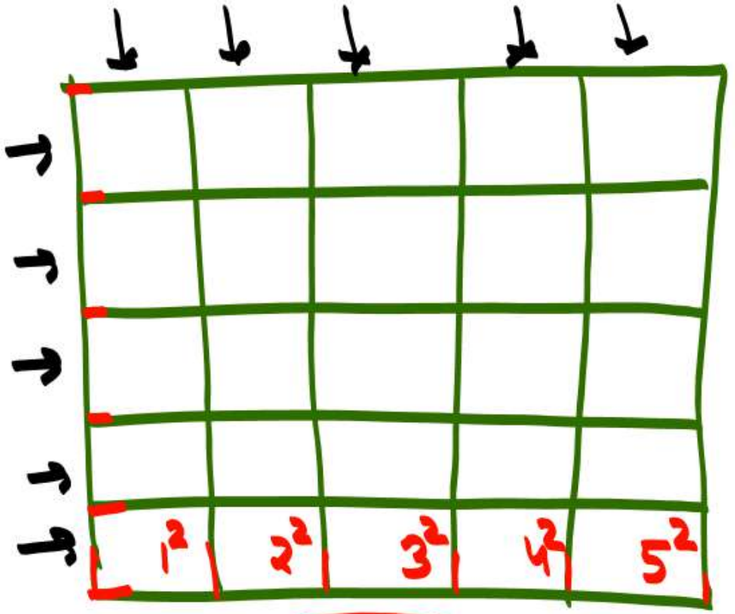
(d) 17

Counting of squares

वर्ग की गणना

SQUARE (वर्ग)

Standard Pattern (मानक पैटर्न)



शर्त: पंक्ति = स्तम्भ

Rows = Columns

5 = 5

Total वर्ग / कुल Square = $1^2+2^2+3^2+4^2+5^2$ (N=5)

$1+4+9+16+25$

$\Rightarrow 55$ ✓

* $1^2+2^2 \ldots\ldots\ldots\ldots N^2$

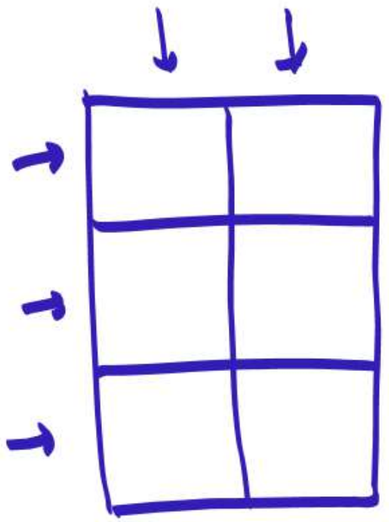
$$Sum = \frac{N(N+1)(2N+1)}{6}$$

$$\frac{5(5+1)(5\times2+1)}{6}$$

$$= \frac{5\times6\times11}{6} = 55$$ ✓

MATRIX

शर्त: → जब मैट्रिक्स के रूप में आकृति हो।



Row = 3

Column = 2

** Method

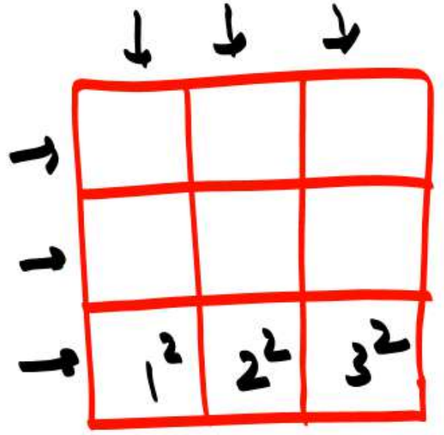
R × C पंक्ति × स्तम्भ

3 × 2 = 6

2 × 1 = 2

1 × 0 = 0

8 ✓



⇒ $1^2+2^2+3^2$

⇒ 1+4+9=14 ✓

R=3 C=3

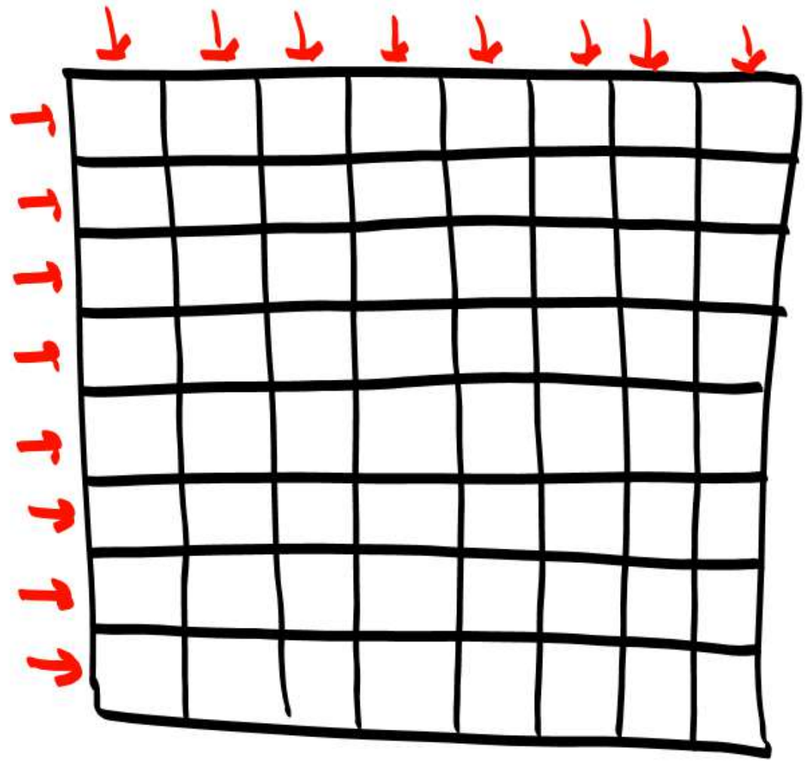
3 × 3 = 9

2 × 2 = 4

1 × 1 = 1

14 ✓

* How many Squares are there in a chess Board?
शतरंज बोर्ड मे कितने वर्ग होते हैं



Row → 8

Column → 8

8×8
7×7
6×6
5×5
4×4
3×3
2×2
1×1

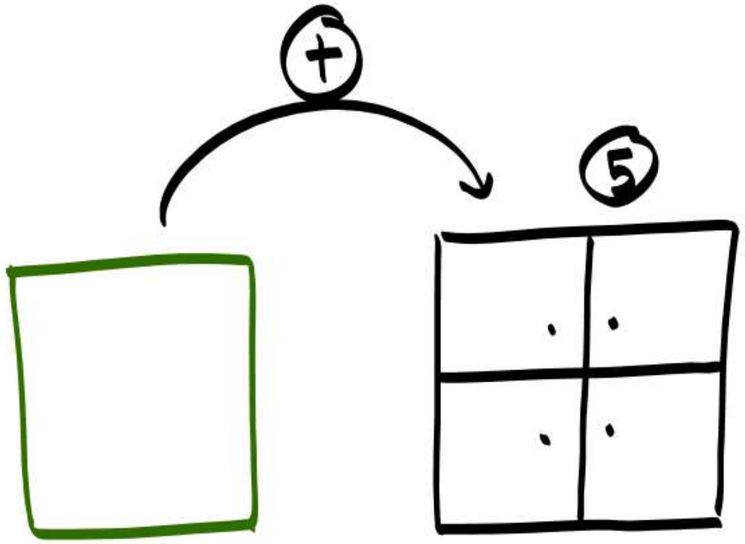
⇒ 204

N = 8

$1^2+2^2+3^2+4^2+5^2+6^2+7^2+8^2$ ⇒

$Sum = \frac{N(N+1)(2N+1)}{6}$

$= \frac{8(9)(17)}{6} \Rightarrow 204$



वर्ग = 1

1 + 4

= 5

वर्ग (SQUARE)

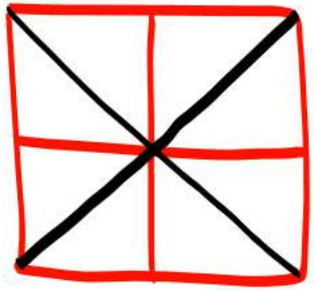
चारो भुजाएं बराबर

चारो कोण = 90°

दोनो विकर्ण बराबर

Note ⇒ All Squares are Rectangle

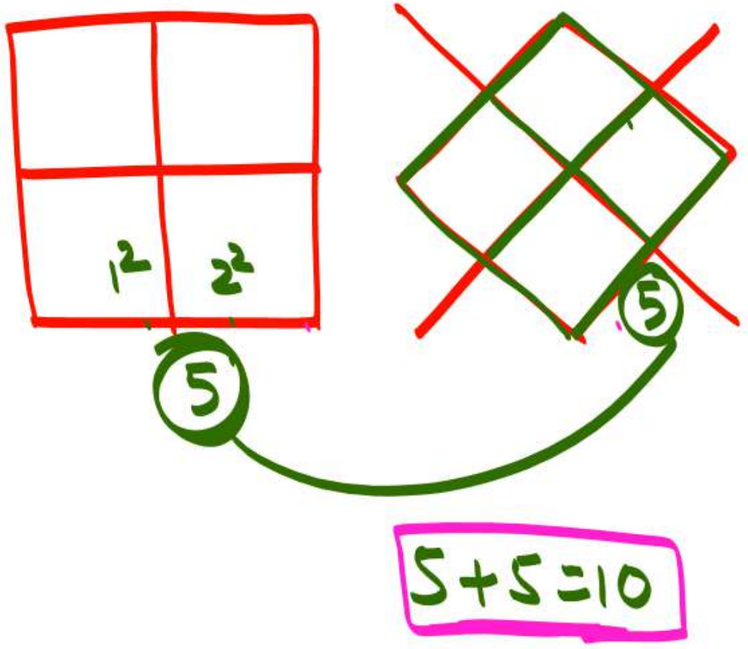
सभी वर्ग, आयत होते हैं

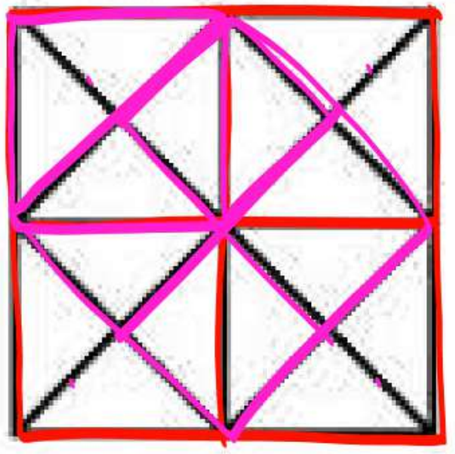


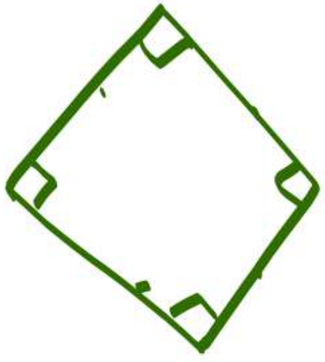
Q. No. : 1

Find the total number of squares in the figure.

आकृति में कुल वर्गों की संख्या ज्ञात कीजिए।





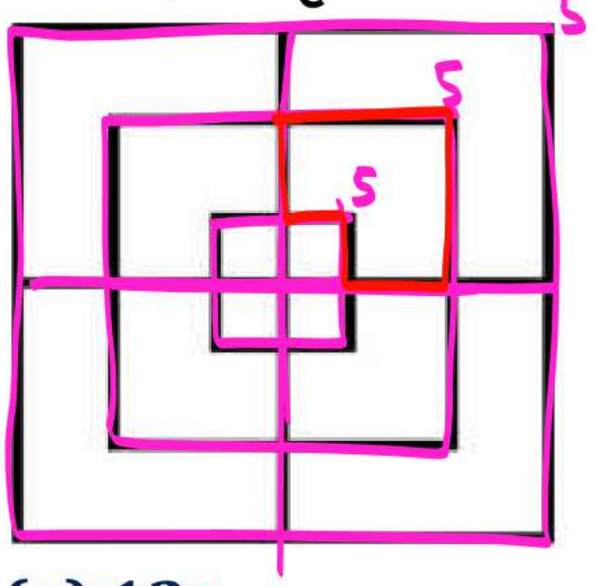


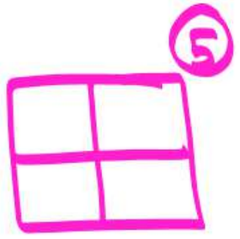
(a) 6
(b) 12
(c) 8
(d) 10

Q. No. : 2

How many maximum squares are there in the given figure?

दी गई आकृति में अधिकतम कितने वर्ग हैं?





(a) 12

(b) 15

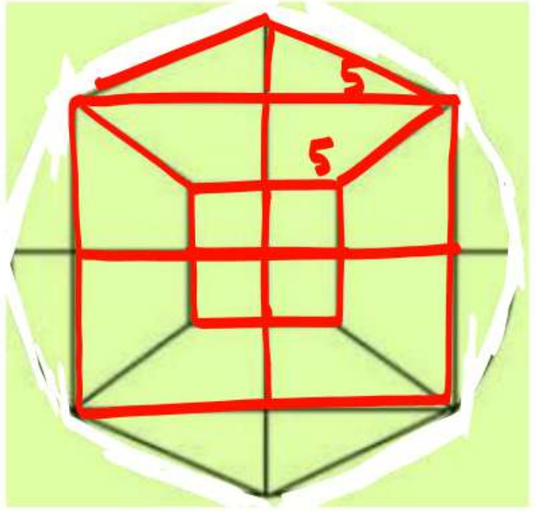
(c) 18

(d) 8

Q. No. : 3

How many squares are there in the given figure?

दी गई आकृति में कितने वर्ग हैं?



5 + 5 = 10

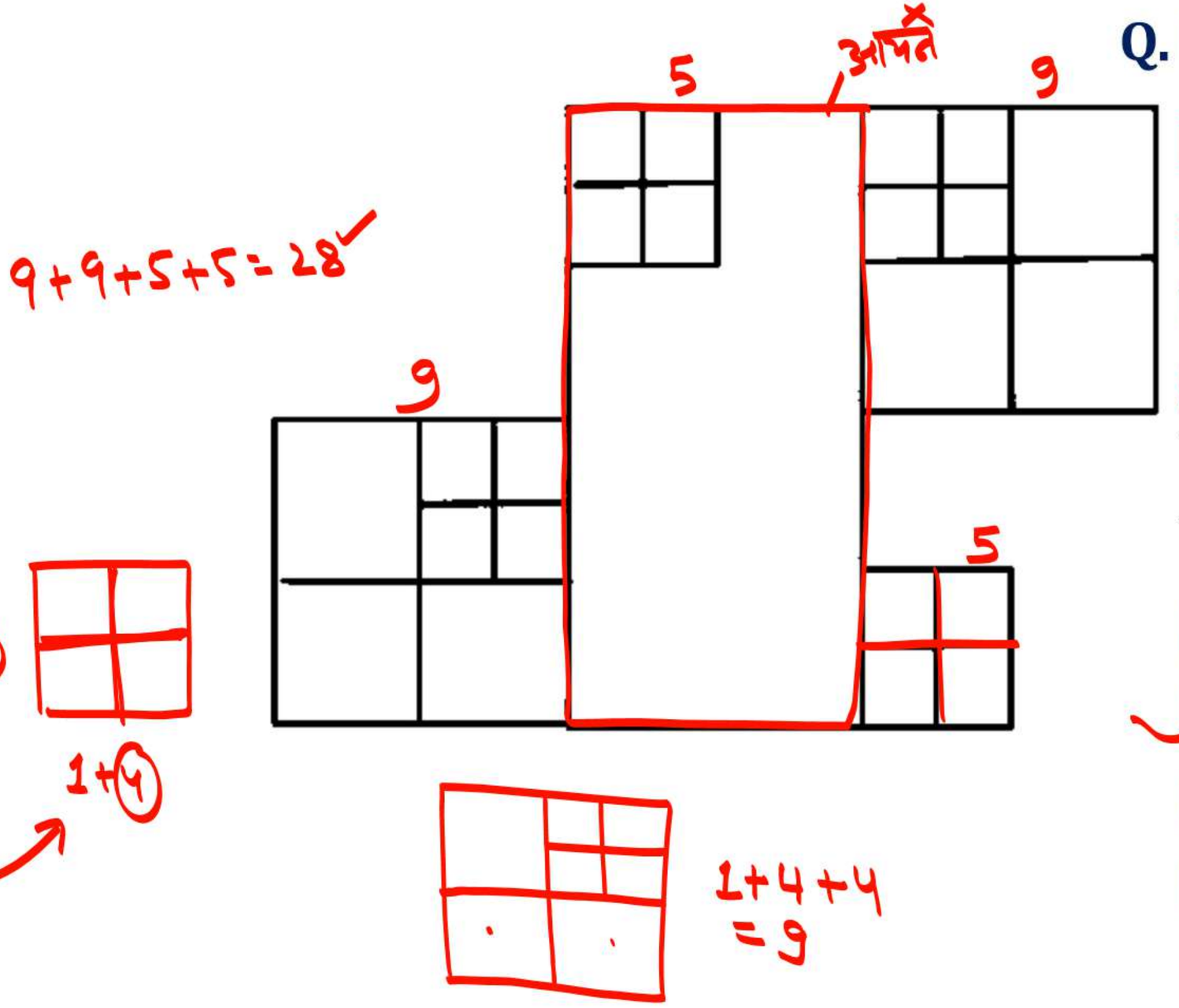
(a) 11

(b) 9

(c) 10

(d) 12

Q. No. : 4



How many squares are there in the given figure?

दी गई आकृति में कितने वर्ग हैं?

(a) 53

(b) 28

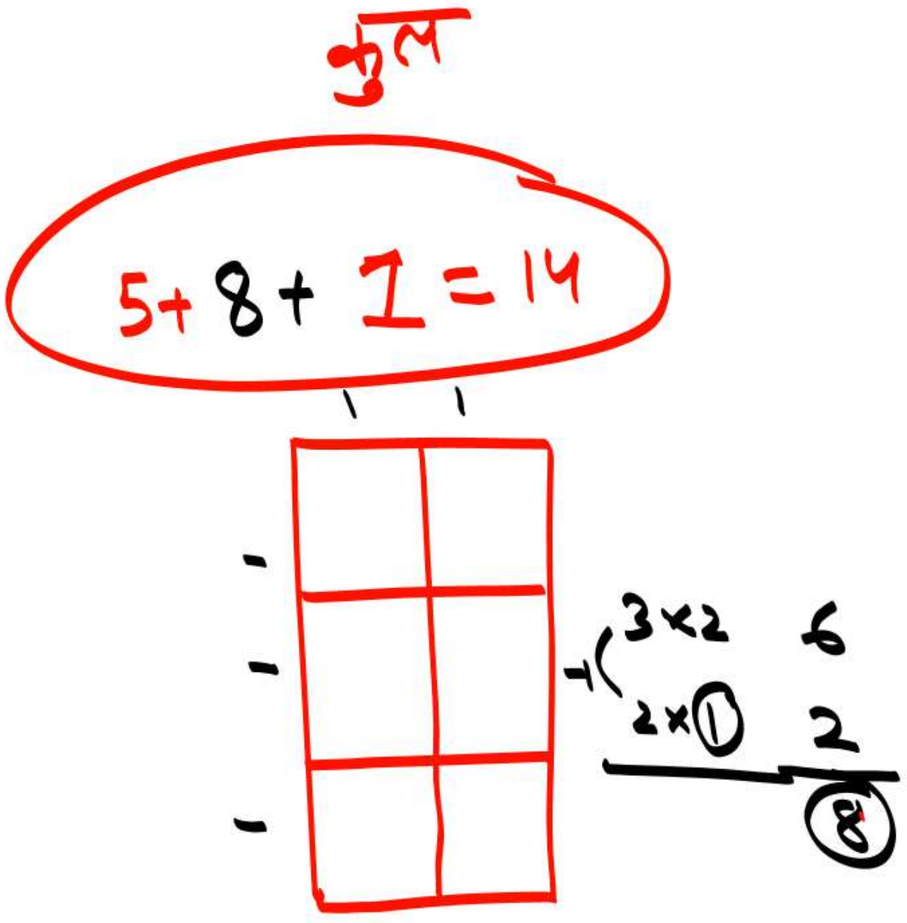
(c) 27

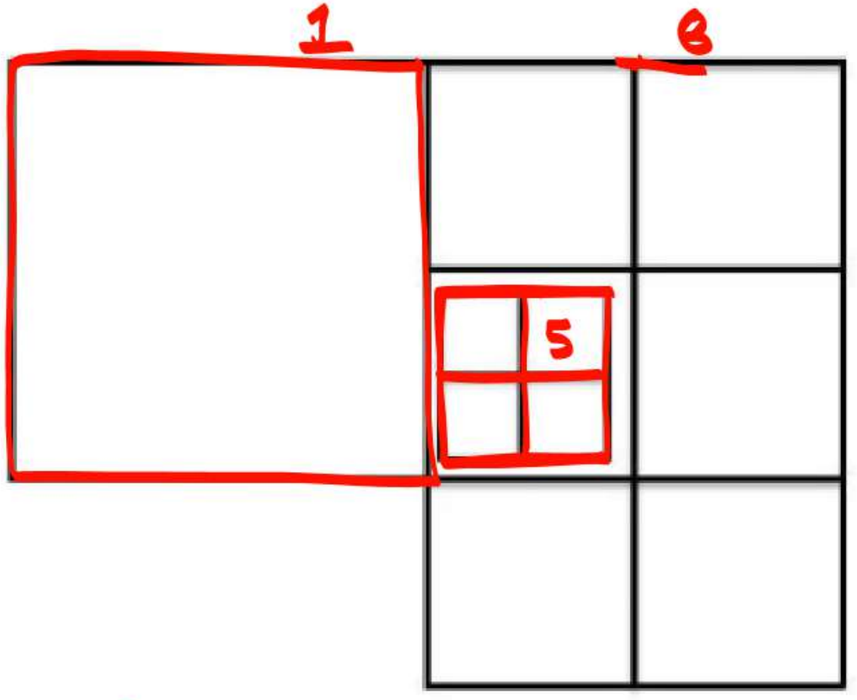
(d) 54

Q. No. : 5

How many squares are there in the given figure?

दी गई आकृति में कितने वर्ग हैं?





(A) 14

(B) 20

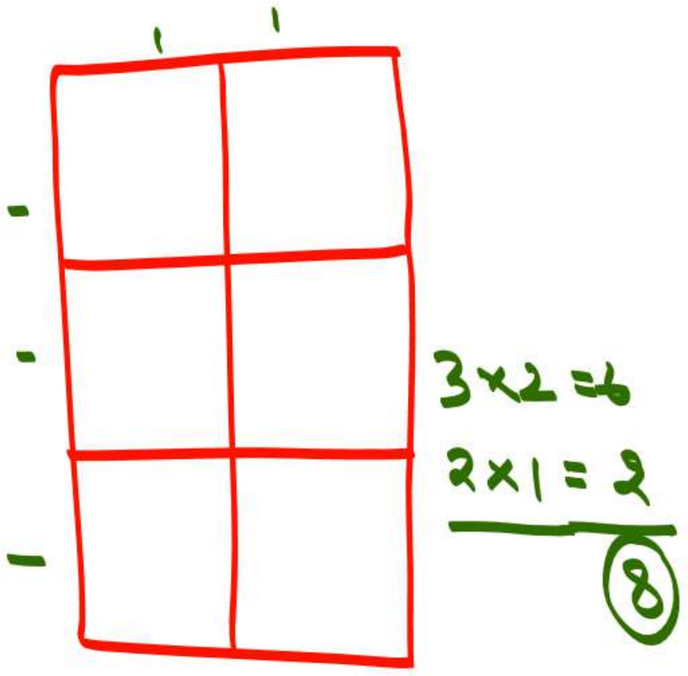
(C) 21

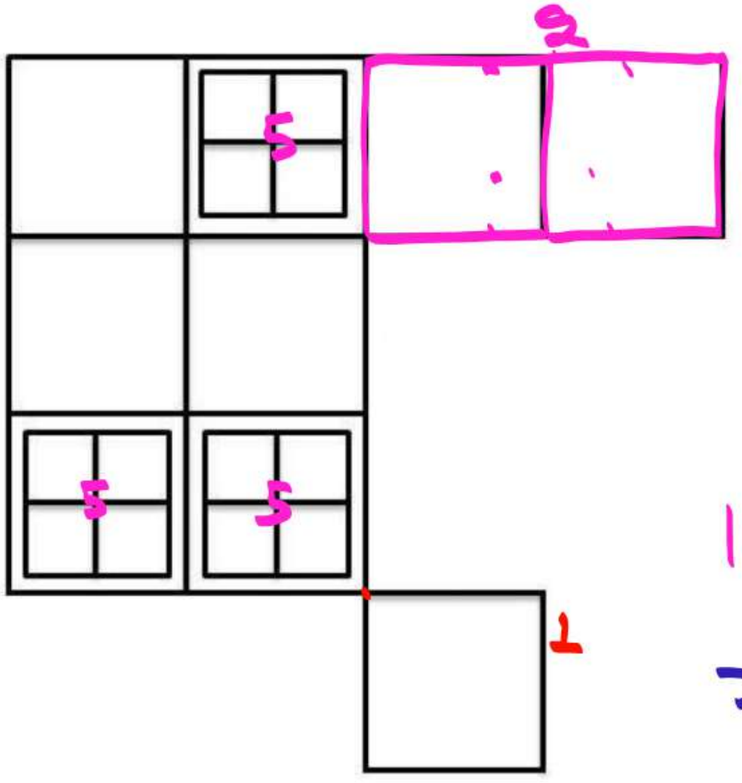
(D) 18

Q. No. : 6

How many squares are there in the given figure?

दी गई आकृति में कितने वर्ग हैं?





कुल =

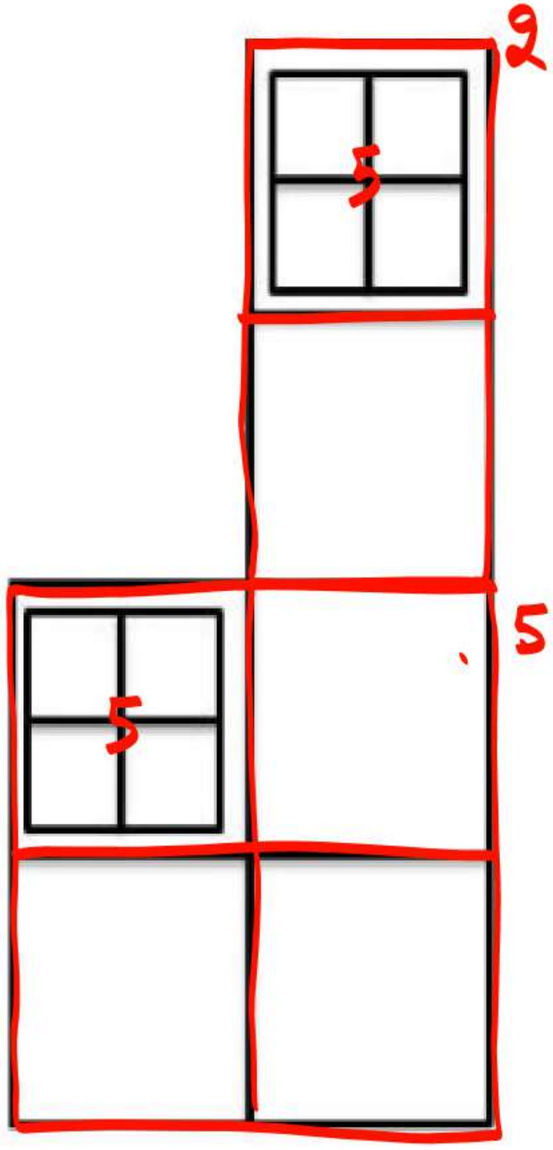
1+5+5+5+8+2

= 26

(A) 20 (B) 21

(C) 26 (D) 25

Q. No. : 7



How many squares are there in the given figure?

दी गई आकृति में कितने वर्ग हैं?

(A) 18 (B) 17

(C) 20 (D) 21

5+5+5+2

=17 ✓

Counting of Rectangles

आमने सामने की भुजाएं बराबर

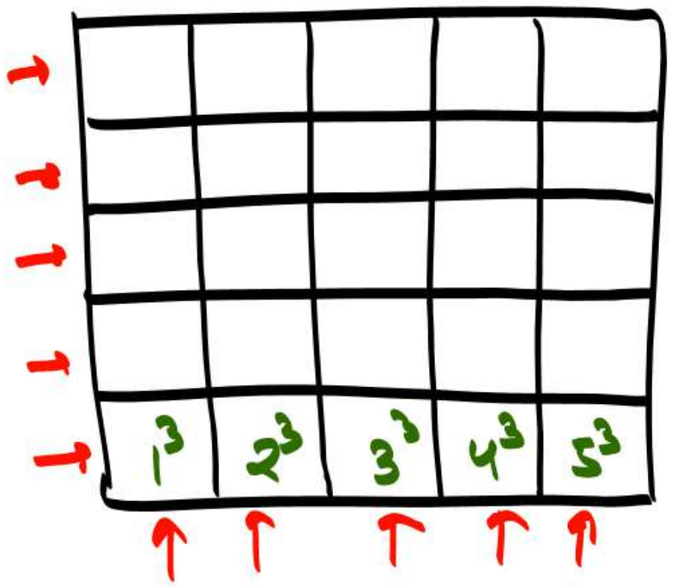
चारो कोण 90°

दोनो विकर्ण बराबर

आयतो की गणना

Counting of Rectangles.

मैट्रिक्स (MATRIX)



R = 5 C = 5

शर्त (Condition) पालन = वर्गाकार

Row = Column ✓

$1^3+2^3+3^3+4^3+5^3 \Rightarrow$

$1+8+27+64+125 \Rightarrow 225$ ✓

Formula

$1^3+2^3+3^3 \ldots\ldots\ldots N^3$

$$\text{Sum} = \left[\frac{N(N+1)}{2}\right]^2$$

Sum → पूर्ण वर्ग
↳ perfect square.

$$\left[\frac{5(5+1)}{2}\right]^2$$

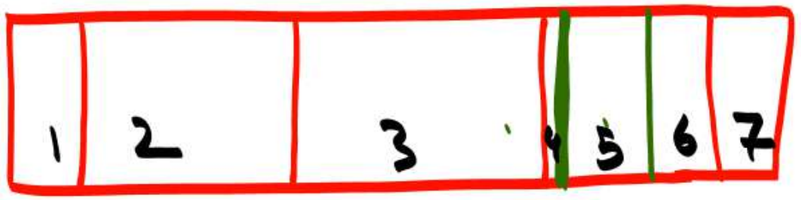
$$= \left[\frac{5\times 6^3}{2}\right]^2 = 15^2 = 225$$ ✓

क्रमागत संख्याएँ

$1+2+3 - - - - - - N$

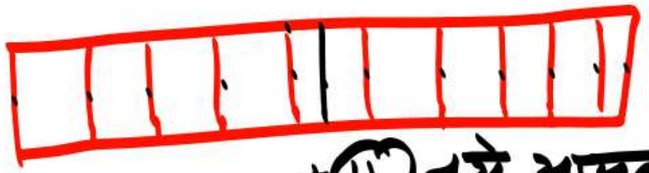
$$\text{योग} = \frac{N(N+1)}{2}$$

* Tricks / Methods / Concepts / Technique

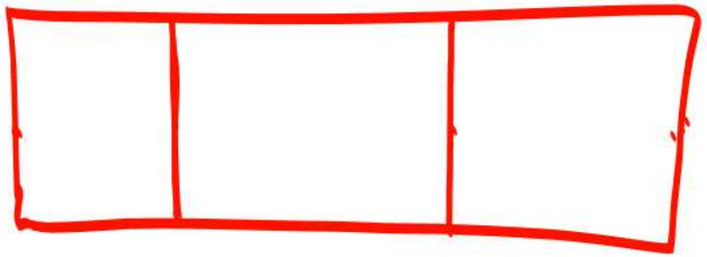


आयत
Rectangle $= 1+2+3+4+5+6+7$

$= \frac{N(N+1)}{2} = \frac{7\times 8}{2} = 28$



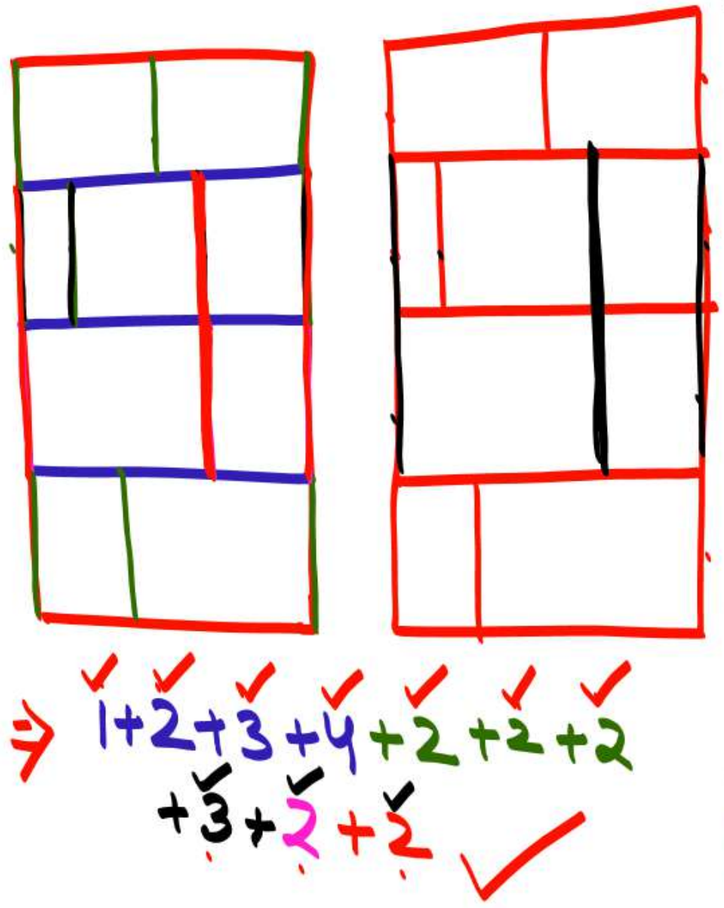
+(11) नये आयत बनेंगे



1+2+3

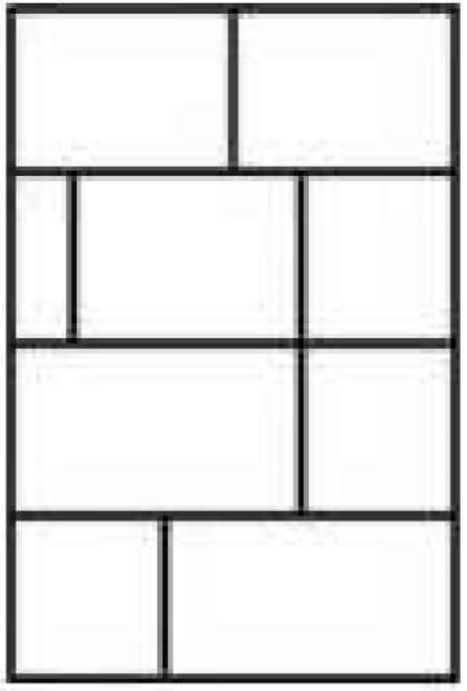
Q. No. : 8

Construction



How Many quadrilaterals are there in the given figure ?

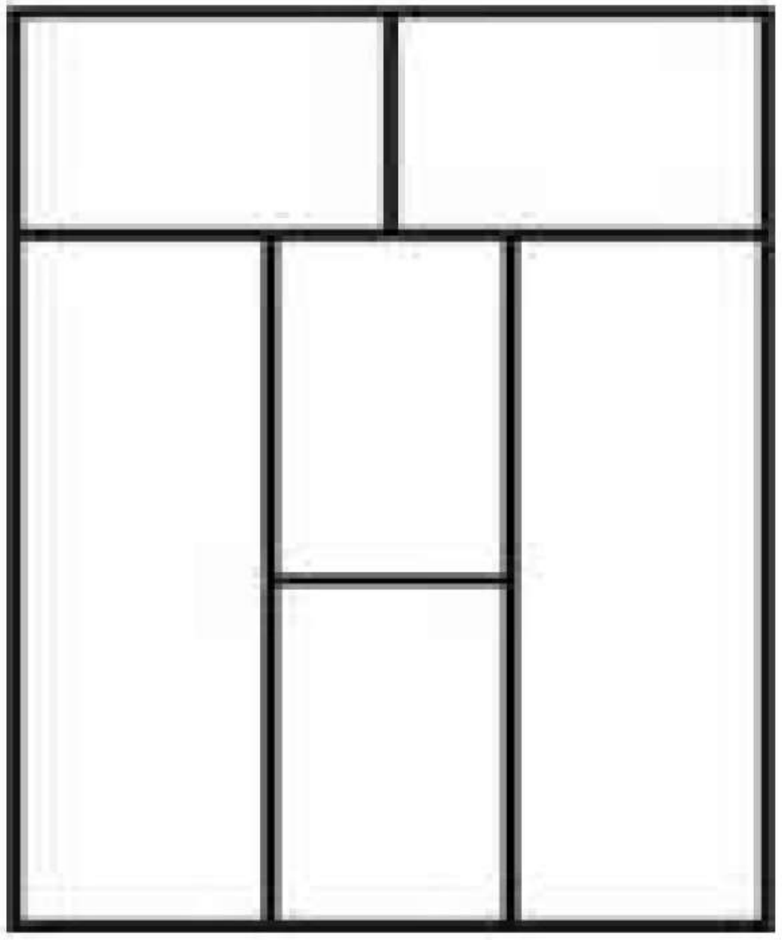
दी गई आकृति में कितने चतुर्भुज हैं?



आयत ✓

(a) 24 (b) 25 (c) 22 (d) 23

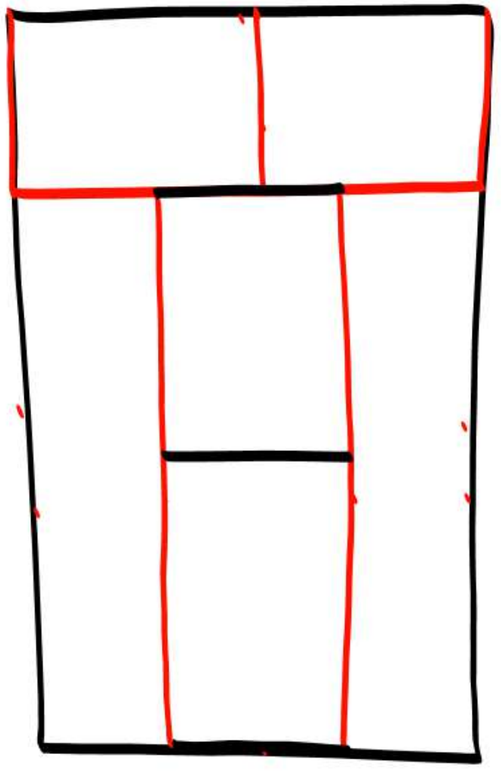
Q. No. : 9



How many quadrilaterals are there in the given figure ?

दी गई आकृति में कितने चतुर्भुज हैं?

(a)14
(b)13
(c) 12
(d)11

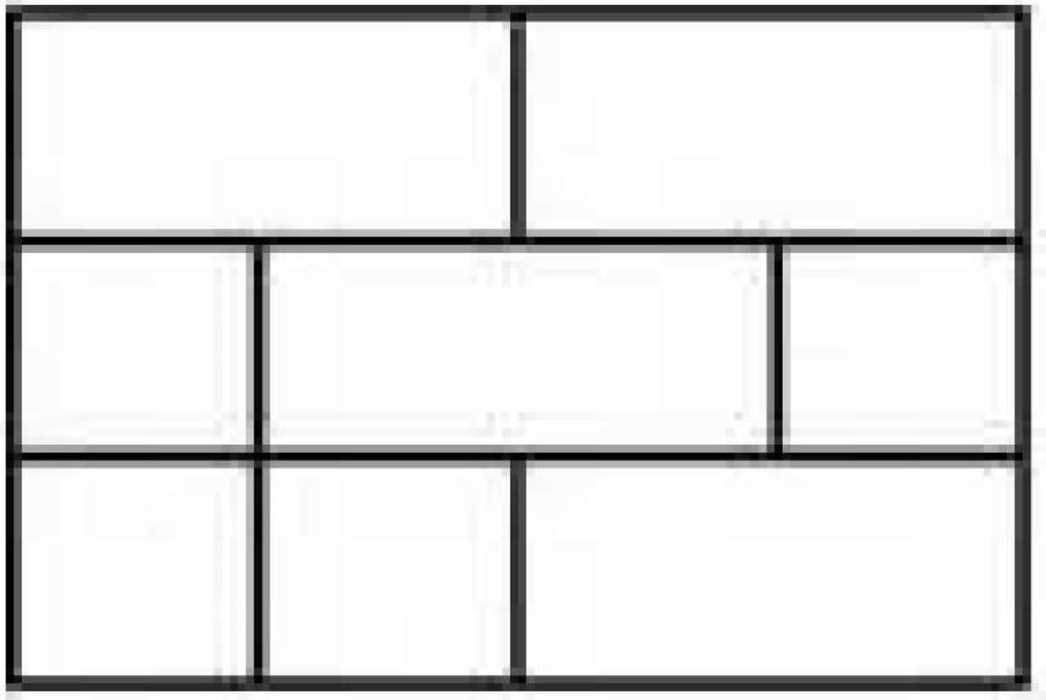


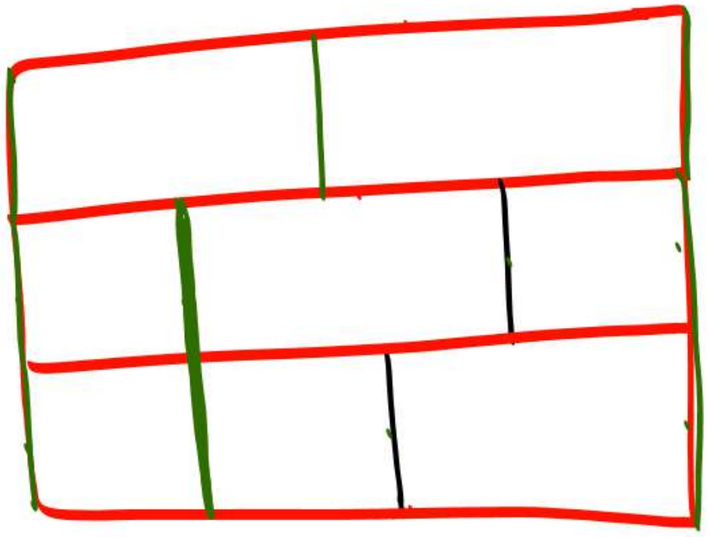
1+2+2+2+3+2 ✓

Q. No. : 10

25. How many quadrilaterals are there in the given figure ?

दी गई आकृति में कितने चतुर्भुज हैं?





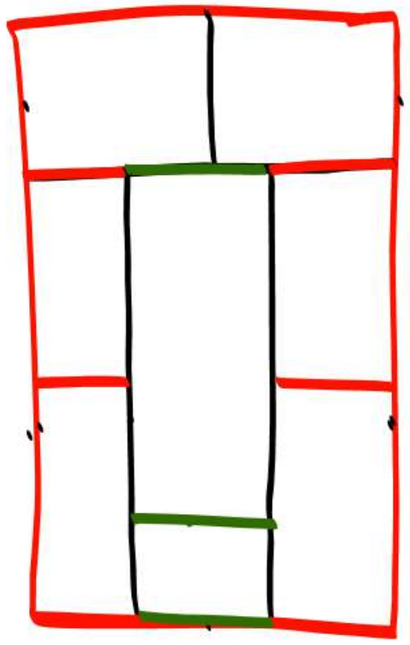
1+2+3+2+2
+3+3+2 ⇒ 18+2
= 20

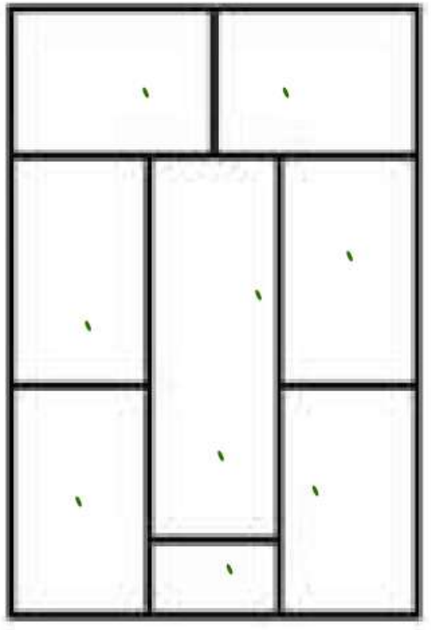
(a) 17
(b) 19
(c) 20
(d) 18

Q. No. : 11

How many quadrilaterals are there in the given figure?

दी गई आकृति में कितने चतुर्भुज हैं?





1+2+2+2+3+2+2+2

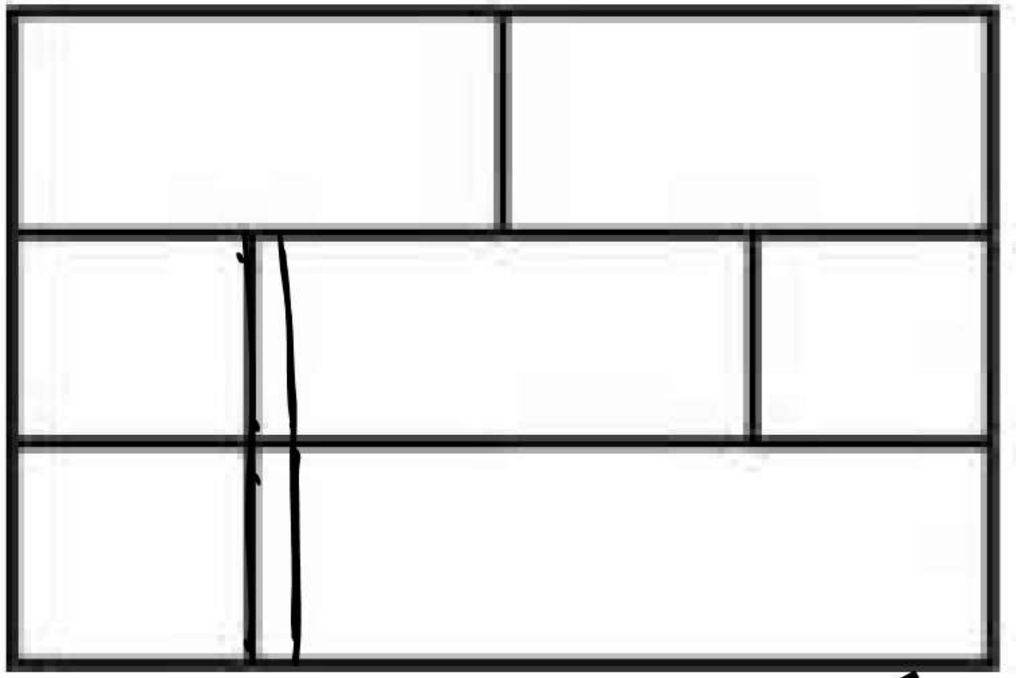
⇒ 16

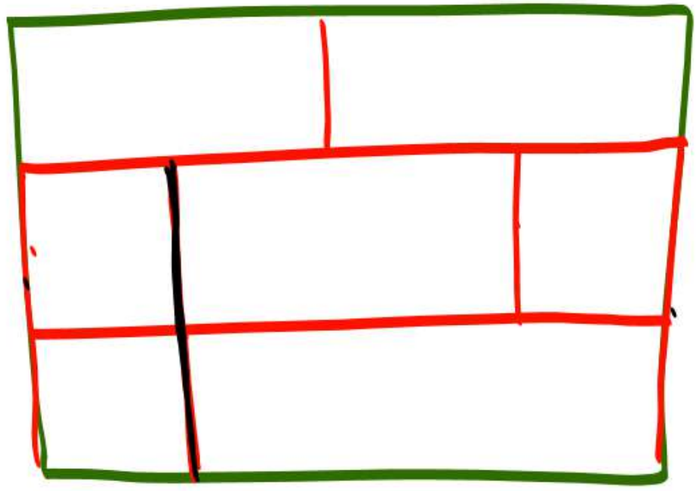
(a) 15
(b) 16
(c) 14
(d) 17

Q. No. : 12

How many quadrilaterals are there in the given figure?

दी गई आकृति में कितने चतुर्भुज हैं?





1+2+3+2+2+3+2+2

(a) 18

(b) 17

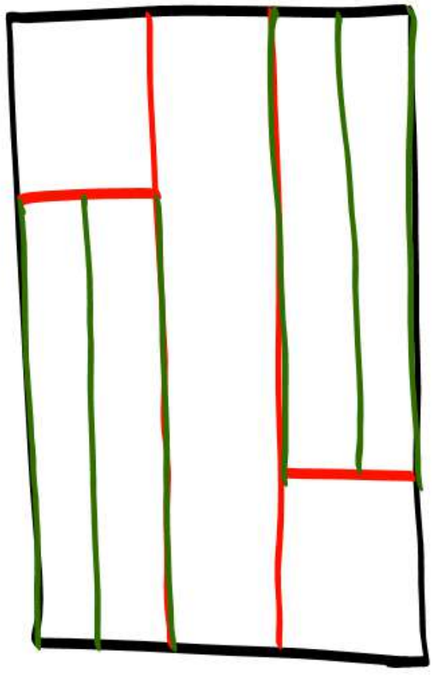
(c) 16

(d) 15

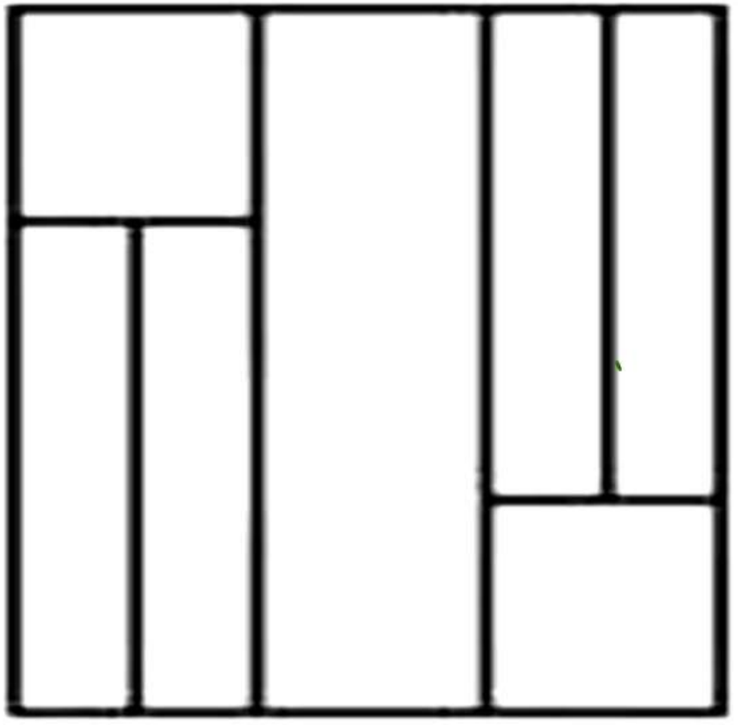
Q. No. : 13

How many quadrilaterals are there in the given figure?

दी गई आकृति में कितने चतुर्भुज हैं?



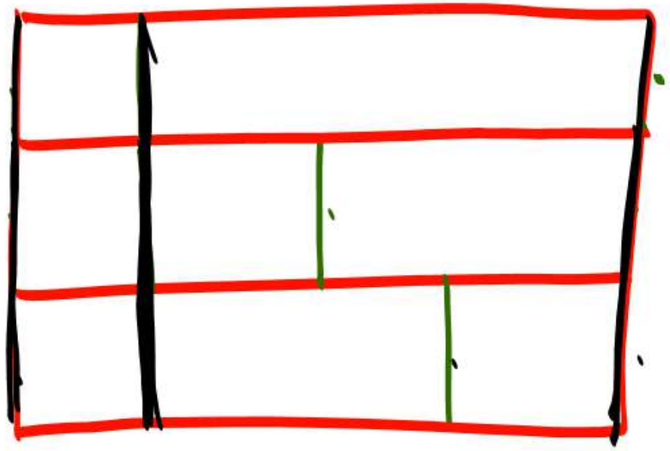
1+2+3+2+2+2+2



(a) 15
(b) 14
(c) 16
(d) 13

Q. No. : 14

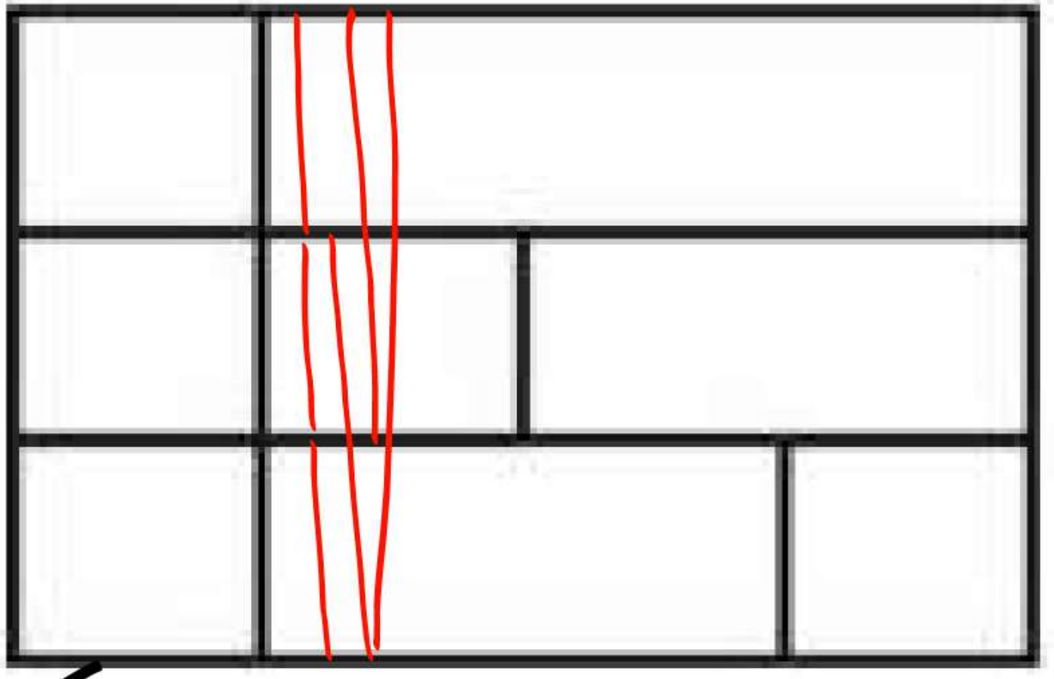
Note



1+2+3+2+2+2+3+2
+3+2+2

How many quadrilaterals are there in the given figure?

दी गई आकृति में कितने चतुर्भुज हैं?

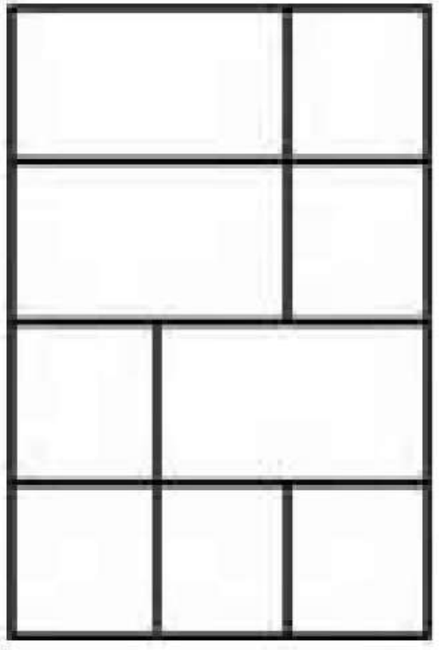


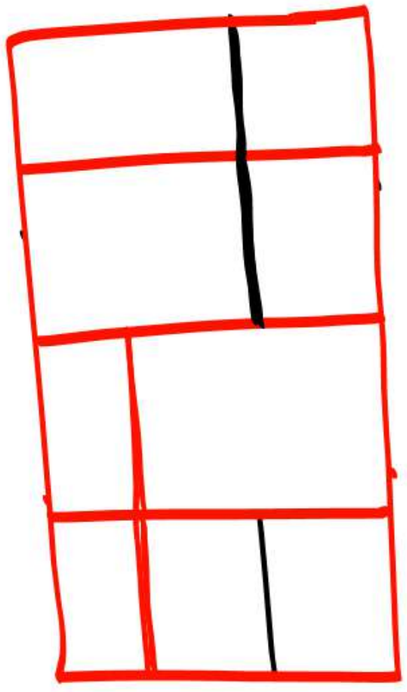
(a) 24
(b) 21
(c) 23
(d) 22

Q. No. : 15

How many quadrilaterals are there in the given figure?

दी गई आकृति में कितने चतुर्भुज हैं?





1 + 2 + 3 + 4 + 2 + 2 + 2 + 2 + 2 + 3 + 2

(a) 24

(b) 25

(c) 22

(d) 23