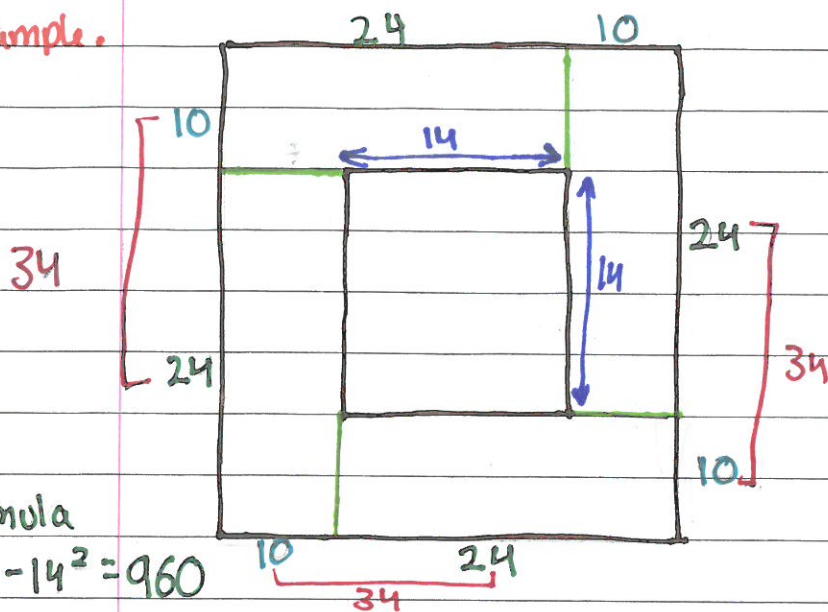


Hollow Square

Example.



This square is divided into 4 sections so it is easier to solve.

There are 960 soldiers in this hollow square
 $960 \div 4 = 240$

So we now know that the factors of 240 will add up to make

the side of the outside of the larger square.

24 & 10 are factors of 240. Add them up gives us 34 and subtracting them gives us 14.
 square them both as they are sides of a square and do the sum:

Two sides of the square are the same

$$34^2 - 14^2 = 960$$

Factors of 240

- | | |
|-----------|------------|
| 1) 1, 240 | 7) 8, 30 |
| 2) 2, 120 | 8) 10, 24 |
| 3) 3, 80 | 9) 12, 20 |
| 4) 4, 60 | 10) 15, 16 |
| 5) 5, 48 | |
| 6) 6, 40 | |

Only 10 factors pairs of 240 which means only 10 solutions

- ① $(240+1) - (240-1) = 960$
 $241^2 - 239^2 = 960$
- ② $(120+2) - (120-2) = 960$
 $122^2 - 118^2 = 960$
- ③ $(80+3) - (80-3) = 960$
 $83^2 - 77^2 = 960$
- ④ $(60+4) - (60-4) = 960$
 $64^2 - 56^2 = 960$
- ⑤ $(48+5) - (48-5) = 960$
 $53^2 - 43^2 = 960$
- ⑥ $(40+6) - (40-6) = 960$
 $46^2 - 34^2 = 960$
- ⑦ $(30+8) - (30-8) = 960$
 $38^2 - 22^2 = 960$

- ⑧ $(24+10) - (24-10) = 960$
 $34^2 - 14^2 = 960$
- ⑨ $(20+12) - (20-12) = 960$
 $32^2 - 8^2 = 960$
- ⑩ $(16+15) - (16-15) = 960$
 $31^2 - 1^2 = 960$