

Solutions: Heron and His Work

#1

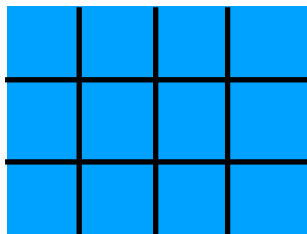


#2 When the Republic of Turkey was founded in 1923, the capital was moved to Ankara, and Constantinople was officially renamed Istanbul in 1930.

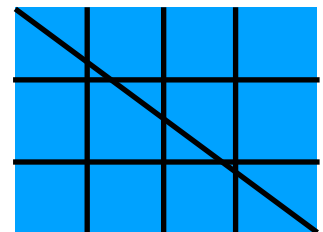


#3

12 cm²



#4 The area of the triangle is half that of the rectangle. (My grid lines are a bit off!) 6 cm²
This is why the equation for area of a triangle is $A = \frac{1}{2} bh$.



#5

a) 9

b) 1

c) 11

d) 8

e) $14 \times 14 = 196$ Therefore, the square root of 196 is 14.

f) $73 \times 73 = 5,329$ Therefore, the square root of 5329 is 73.

#6

a) $2.8 \times 2.8 = 7.84$, which is close to 8. Therefore, the square root of 8 is close to 2.8.

b) $2.83 \times 2.83 = 8.0089$

2.83^2 is 0.0089 from 8.

2.8^2 is 0.2 away from 8.

2.83 is a closer approximation of the square root of 8.

c and d)

2.83^2 is too larger to be the exact square root of 8.

2.8^2 is too small to be the exact square root of 8.

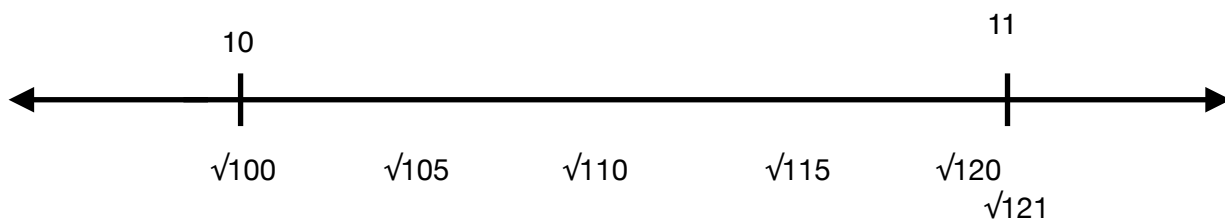
Therefore, the square root of 8 is between 2.8 and 2.83.

#7

I know the square root of 100 is 10.

I know 11^2 is 121.

The square root of 106 will be closer to 10 than 11.



My guess: 10.28.

$10.28^2 = 105.6784$ close:) How was yours?