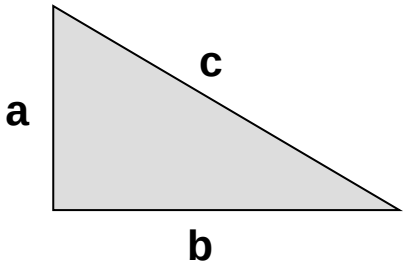
Pythagoras' Theorem:

In any right-angled triangle, if we have two sides we can calculate the other side using Pythagoras' theorem:

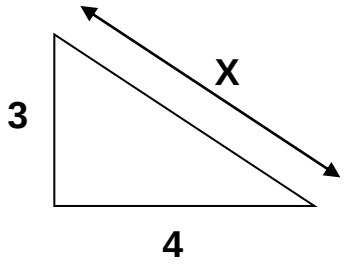
Formula: $a^2 + b^2 = c^2$



(It is always the two smaller sides squared and then added together to give the largest side or hypotenuse)

Example 1:

In the following triangle, calculate the length of the unknown side?



Formula: $a^2 + b^2 = c^2$

$3^2 + 4^2 = x^2$

$9 + 16 = x^2$

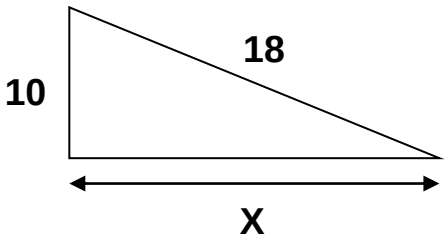
$25 = x^2$

$\sqrt{25} = x$

$5 = x$

Example 2:

In the following triangle, calculate the length of the unknown side?



Formula: $a^2 + b^2 = c^2$

$10^2 + x^2 = 18^2$

$100 + x^2 = 324$

$x^2 = 324 - 100$

$x^2 = 224$

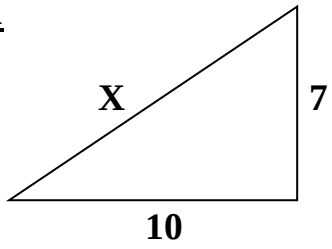
$x = \sqrt{224}$

$x = 14.96662$

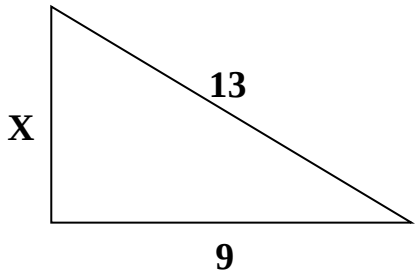
$x = 14.967$

Calculate the Length of the unknown sides

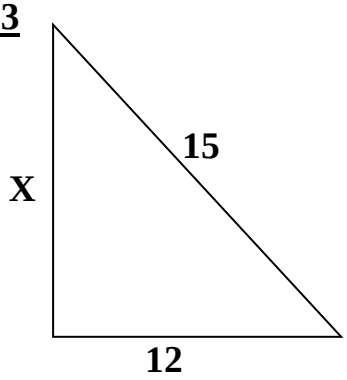
Q. 1



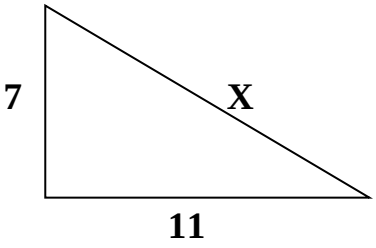
Q. 2



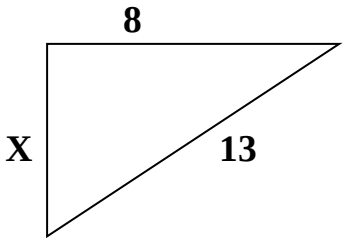
Q. 3



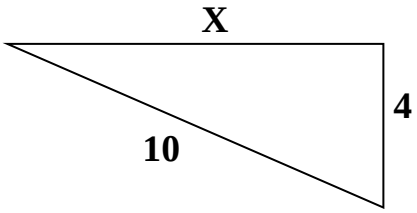
Q. 4



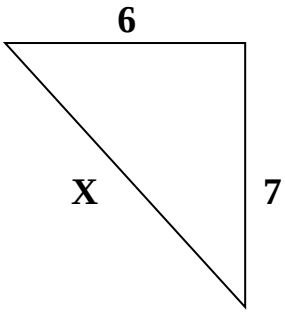
Q. 5



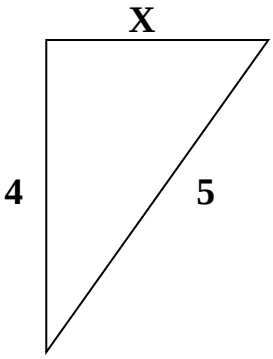
Q. 6



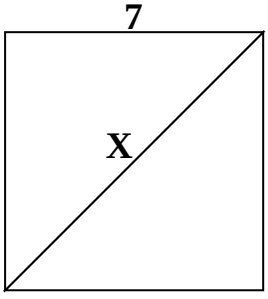
Q. 7



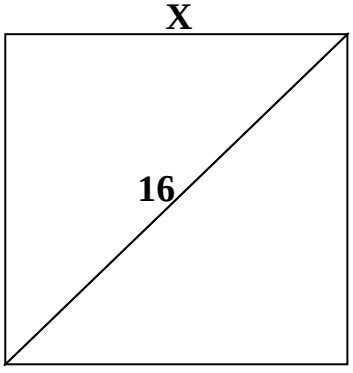
Q. 8



Q. 9

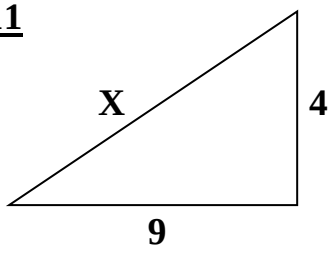


Q. 10

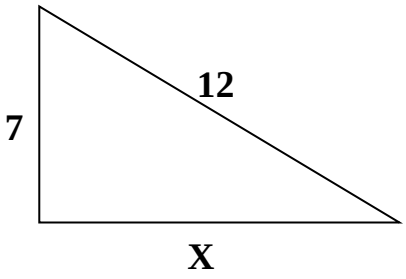


Calculate the Length of the unknown sides(continued)

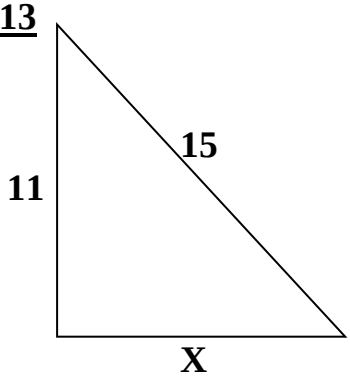
Q. 11



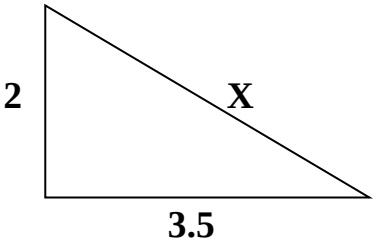
Q. 12



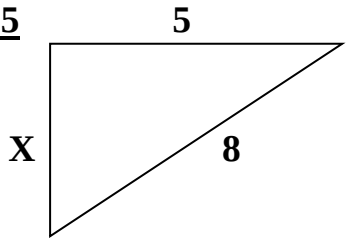
Q. 13



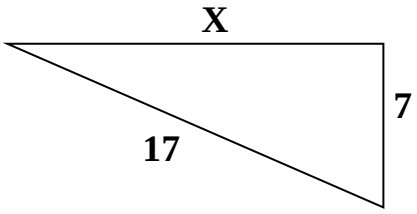
Q. 14



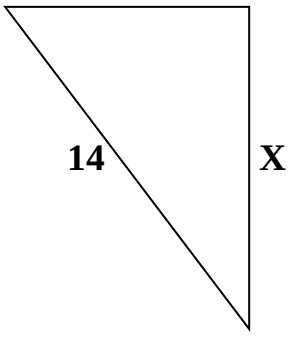
Q. 15



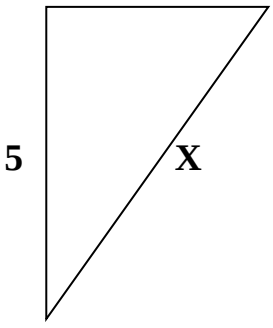
Q. 16



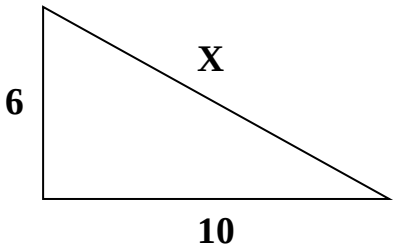
Q. 17



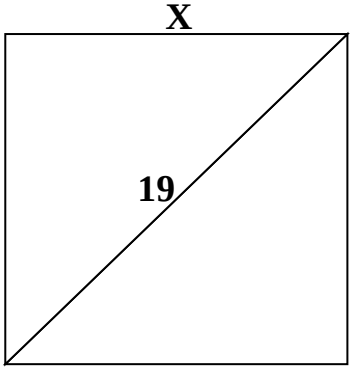
Q. 18



Q. 19



Q. 20



Calculate the Length of the unknown sides(answers)

Q. 1

$10^2 + 7^2 = x^2$
$100 + 49 = x^2$
$\sqrt{149} = x$
$12.207 = x$

Q. 2

$x^2 = 13^2 - 9^2$
$x^2 = 169 - 81$
$x^2 = 88$
$x = 9.381$

Q. 3

$x^2 = 15^2 - 12^2$
$x^2 = 225 - 144$
$x^2 = 81$
$x = 9$

Q. 4

$7^2 + 11^2 = x^2$
$49 + 121 = x^2$
$\sqrt{170} = x$
$13.038 = x$

Q. 5

$x^2 = 13^2 - 8^2$
$x^2 = 169 - 64$
$x^2 = 105$
$x = 10.247$

Q. 6

$x^2 = 10^2 - 4^2$
$x^2 = 100 - 16$
$x^2 = 84$
$x = 9.165$

Q. 7

$6^2 + 7^2 = x^2$
$36 + 49 = x^2$
$\sqrt{85} = x^2$
$9.22 = x$

Q. 8

$x^2 = 5^2 - 4^2$
$x^2 = 25 - 16$
$x^2 = 9$
$x = 3$

Q. 9

$7^2 + 7^2 = x^2$
$49 + 49 = x^2$
$\sqrt{98} = x$
$9.899 = x$

Q. 10

$x^2 + x^2 = 16^2$
$2x^2 = 256$
$x^2 = 256 / 2$
$x^2 = 128$
$x = 11.314$

Q. 11

$9^2 + 4^2 = x^2$
$81 + 16 = x^2$
$\sqrt{97} = x$
$9.849 = x$

Q. 12

$x^2 = 12^2 - 7^2$
$x^2 = 144 - 49$
$x^2 = 95$
$x = 9.747$

Q. 13

$x^2 = 15^2 - 11^2$
$x^2 = 225 - 121$
$x^2 = 104$
$x = 10.198$

Q. 14

$2^2 + 3.5^2 = x^2$
$4 + 12.25 = x^2$
$\sqrt{16.25} = x$
$4.031 = x$

Q. 15

$x^2 = 8^2 - 5^2$
$x^2 = 64 - 25$
$x^2 = 39$
$x = 6.245$

Q. 16

$x^2 = 17^2 - 7^2$
$x^2 = 289 - 49$
$x^2 = 240$
$x = 15.492$

Q. 17

$x^2 = 14^2 - 6^2$
$x^2 = 196 - 36$
$x^2 = 160$
$x = 12.649$

Q. 18

$3^2 + 5^2 = x^2$
$9 + 25 = x^2$
$\sqrt{34} = x$
$5.831 = x$

Q. 19

$6^2 + 10^2 = x^2$
$36 + 100 = x^2$
$\sqrt{136} = x$
$11.662 = x$

Q. 20

$x^2 + x^2 = 19^2$
$2x^2 = 361$
$x^2 = 361 / 2$
$x^2 = 180.5$
$x = 13.435$