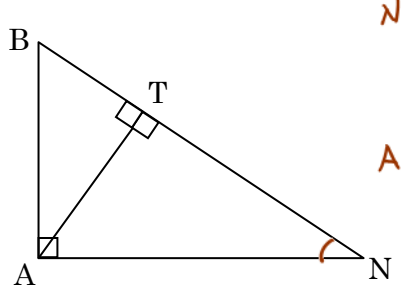
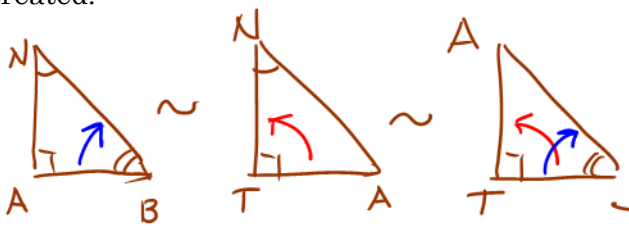
Worksheet 1 Altitude to the Hypotenuse **Name** _____

1) If an altitude is drawn to the hypotenuse of triangle BAN below, then name and redraw the 3 similar triangles created.



leg



$\frac{AT}{NT} = \frac{BT}{AT}$

$AT^2 = (BT)(NT)$

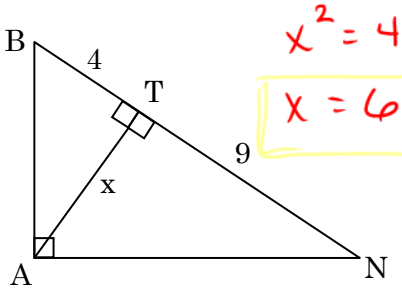
$(alt)^2 = (part\ 1)(part\ 2)$

$\frac{AB}{BN} = \frac{BT}{AB} \rightarrow AB^2 = (BT)(BN)$

$leg^2 = (close\ part)(whole\ hyp)$

Find the missing value "x" below:

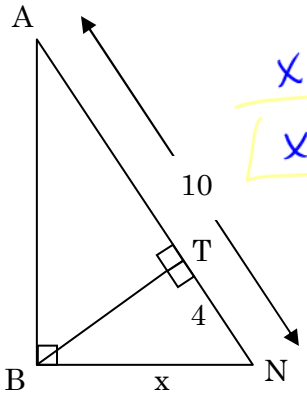
2)



$x^2 = 4 \cdot 9$

$x = 6$

3)

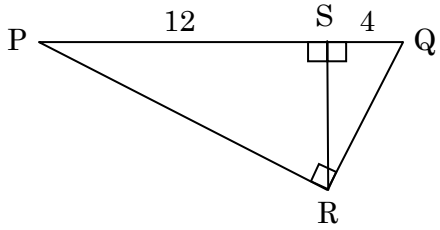


$x^2 = 4(10)$

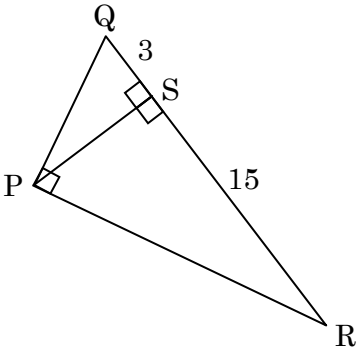
$x = 2\sqrt{10}$

For 4-6 find the length of the altitude of right triangle PQR.

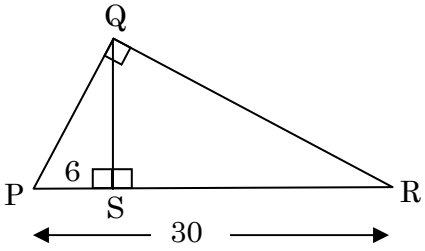
4)



5)



6)



Find the geometric mean of the following numbers.

7) 5 and 8

$\frac{5}{x} = \frac{x}{8} \rightarrow x^2 = 40$

$x = 2\sqrt{10}$

8) 7 and 11

$x = \sqrt{77}$

9) 4 and 9

$x = 6$

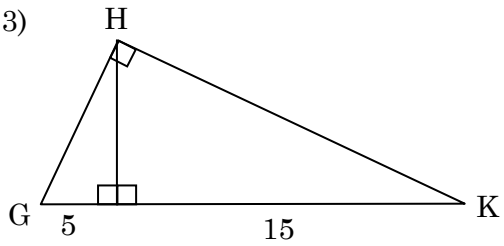
10) 2 and 25

11) 6 and 8

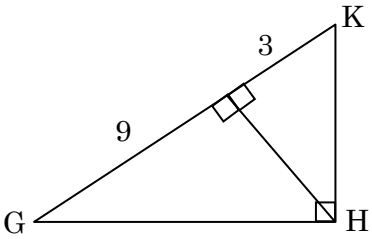
12) 8 and 32

For 7-9 find the length of each leg of right triangle GHK. (find GH and HK)
Hint: find altitude first, then you can do similar triangles or Pythagorean Theorem.

13)



14)



15) How far is it across the lake?