Means Worksheet 50 pts

Name: _____

Review of average (Arithmetic Mean - AM):

The average of two numbers is found using: $AM = \frac{a+b}{2}$

Remember to use parentheses around the top part when using your calculator

Example: 35 and 75 **AM (average) = (35 + 75) / 2 = 55**

Geometric Mean (GM):

The geometric mean of two numbers is found using $GM = \sqrt{ab}$

Geometric means will always be less than or equal to Arithmetic Means

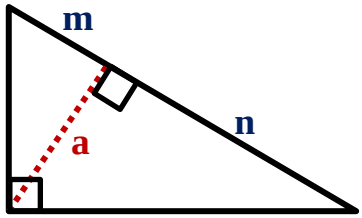
Example: 35 and 75 **GM =** $\sqrt{35 \times 75} = \sqrt{2625} = 51.23$

Problems:

Find the AM and GM of the following pairs of numbers:

	AM	GM
1. 10, 18		
2. 24, 9		
3. 30, 38		
4. 74, 88		
5. 8, 38		
6. 32, 14		

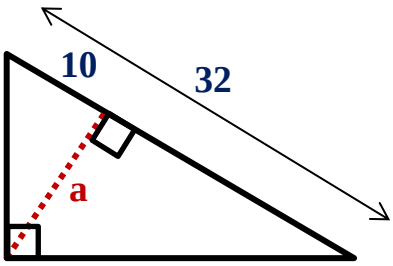
Geometric Mean Application Problems:



The length of an *altitude* to the hypotenuse in a right triangle is the geometric mean of the divided hypotenuse , $a = \sqrt{mn}$.

From similar triangles: $\frac{a}{m} = \frac{n}{a}$ $a = \sqrt{mn}$ **with *a* as the little side in triangle with *n* and the big side in triangle with *m*.**

Example:

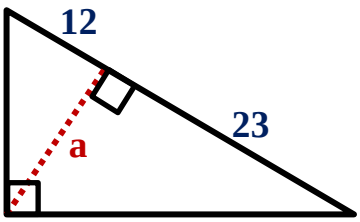


Find a: 10 is part (m) of divided hypotenuse, need to find n (32 – 10), 22.

$a = \sqrt{mn} = \sqrt{10 \times 22} = \sqrt{220}$

$a = 14.83$

7.



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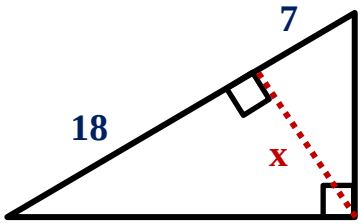

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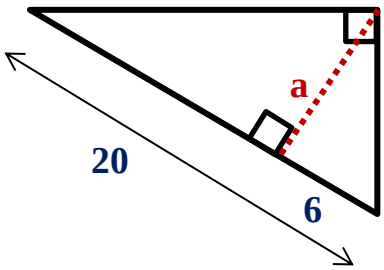

10.