# PhyzJob: Geometry LIVES!
## WAVE OPTICS MATH ESSENTIALS

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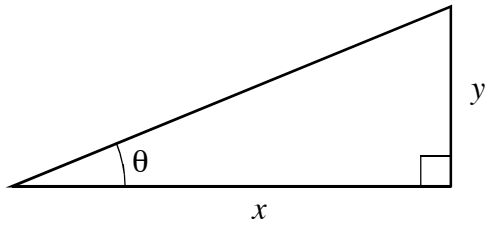
**I. Consider a right triangle such as the one shown to the right. Given the length of the legs x and y, determine the measure of the angle θ. Use the correct number of significant figures in your final answer.**




Ex. $x = 12$ m and $y = 8.0$ m.

$\tan\theta = y/x$

$\theta = \tan^{-1}(y/x)$

$\theta = \tan^{-1}(8.0\text{ m} / 12\text{ m})$

$\theta = 34°$

1. $x = 120$ cm and $y = 42$ cm.

***Write the complete solution.***

$\tan\theta = y/x$

$\theta = \tan^{-1}(y/x)$

$\theta = \tan^{-1}(42\text{ cm} / 120\text{ cm})$

$\theta = 19°$

2. $x = 50.0$ cm and $y = 87.3$ cm.

***Write the complete solution.***

$\tan\theta = y/x$

$\theta = \tan^{-1}(y/x)$

$\theta = \tan^{-1}(50.0\text{ cm} / 87.3\text{ cm})$

$\theta = 60.2°$

3. $x = 24.6$ cm and $y = 52.3$ cm.

***Write the calculated answer.***

$\theta = 64.8°$

4. $x = 13.4$ cm and $y = 6.7$ cm.

***Write the calculated answer.***

$\theta = 27°$

**II. Consider a right triangle such as the one shown above. Given the length of the leg x and the measure of the angle θ, determine the length of the leg y. Use the correct number of significant figures in your final answer.**

Ex. $x = 43$ cm and $\theta = 28°$.

$\tan\theta = y/x$

$y = x\tan\theta$

$y = 43\text{ cm} \cdot \tan 28°$

$y = 23$ cm

5. $x = 102$ cm and $\theta = 22°$.

***Write the complete solution.***

$\tan\theta = y/x$

$y = x\tan\theta$

$y = 102\text{ cm} \cdot \tan 22°$

$y = 41$ cm

6. $x = 25$ cm and $\theta = 57°$.

***Write the complete solution.***

$\tan\theta = y/x$

$y = x\tan\theta$

$y = 25\text{ cm} \cdot \tan 57°$

$y = 38$ cm

7. $x = 50.0$ cm and $\theta = 33°$.

***Write the calculated answer.***

$y = 32$ cm

8. $x = 12$ cm and $\theta = 45°$.

***Write the calculated answer.***

$y = 12$ cm

1.19° 2.60.2° 3.64.8° 4.27° 5.41 cm 6.38 cm 7.32 cm 8.12 cm