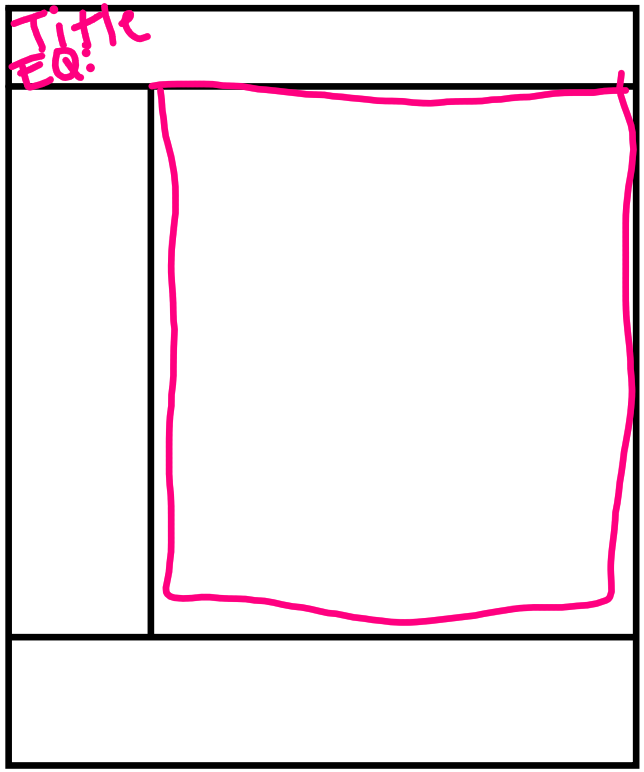
1.1 Special Right Triangles

Essential Question: How do I find the side lengths of 45-45-90 and 30-60-90 triangles?



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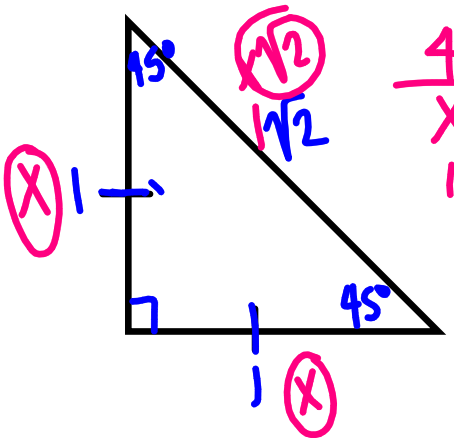
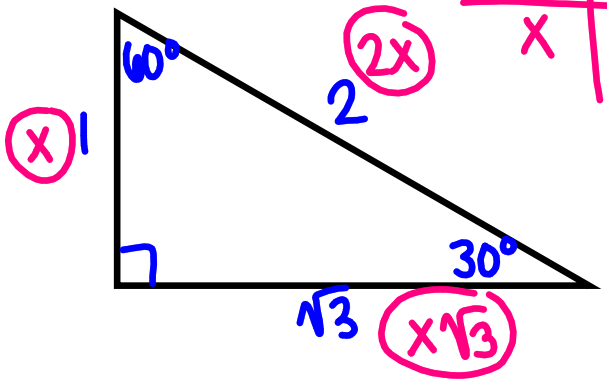
45-45-90

isosceles



45	45	90
x	x	x√2
1		

30-60-90



30	60	90
x	x√3	2x

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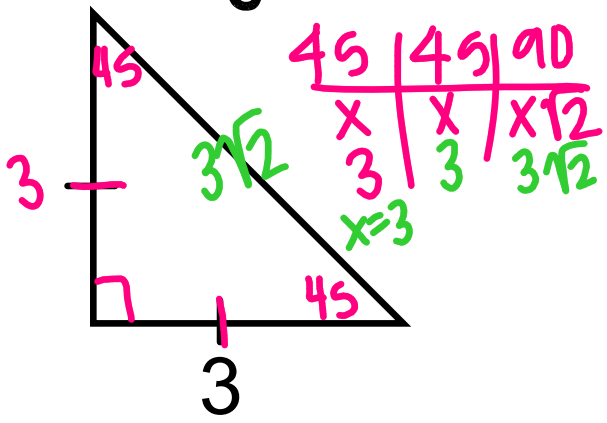
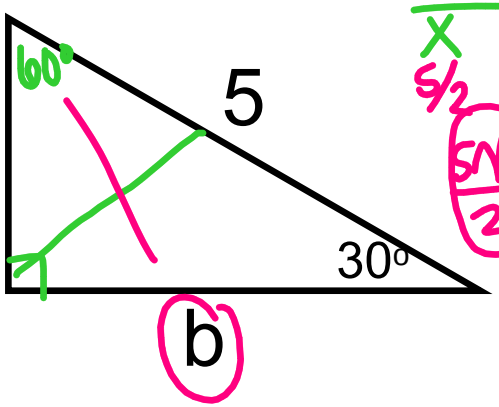
ex. 1 Find each side length.



45	45	90
x	x	x√2
3	3	3√2

x=3

ex. 2 Solve for b.



30	60	90
x	x√3	2x
5/2	5/2 · √3	5

Solve for x

$\frac{5\sqrt{3}}{2}$

$\frac{2x}{2} = \frac{5}{2}$

$x = \frac{5}{2}$

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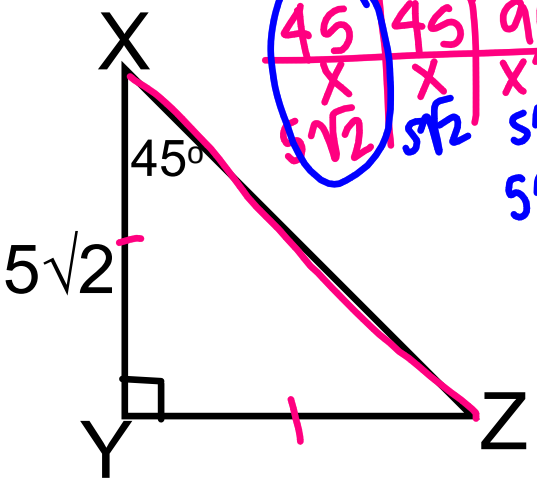
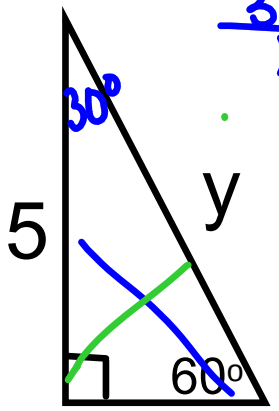
ex. 3 Find XZ



45 | 45 | 90
x | x | x√2
5√2 | 5√2

5√2 · √2
5√4 = 5·2
= 10

ex. 4 Solve for y.



30 | 60 | 90
x | x√3 | 2x
5

2 · 5/√3

x√3 = 5/√3
y = 10/√3

x = 5/√3 · √3/√3 = 5√3/3

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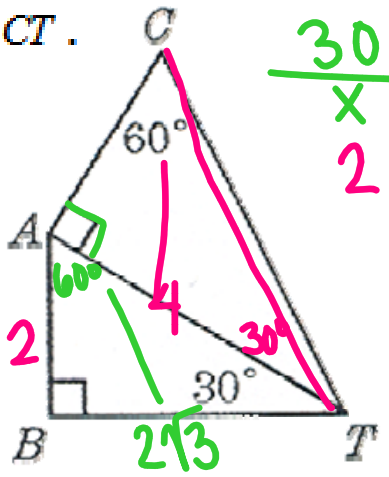
ex. 5

If $BT = 2\sqrt{3}$, find the length of CT.



30	60	90
x	x√3	2x
2	2√3	4

30	60	90
x	x√3	2x
	4	

$2 \cdot \frac{4}{\sqrt{3}}$

$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{4}{\sqrt{3}}$

$x = \frac{4}{\sqrt{3}}$

$\frac{8}{\sqrt{3}}$

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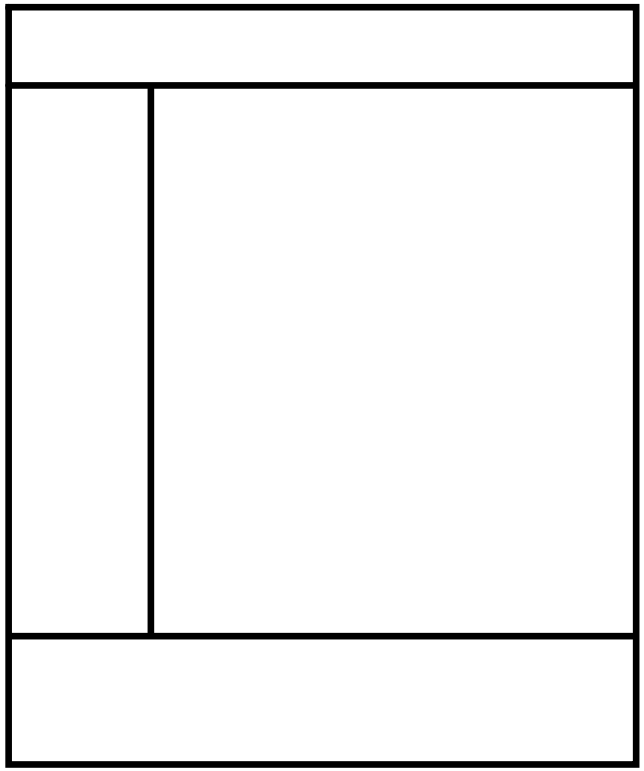

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