

Geometry CC – Mr. Valentino

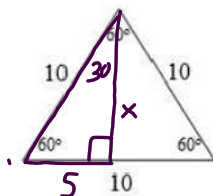
Name: \_\_\_\_\_

Unit 7 Lesson 1: 30-60-90 Triangles

Date: \_\_\_\_\_ Per: \_\_\_\_\_

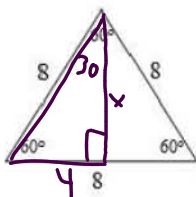
Aim: What are the side lengths of 30°- 60°- 90° triangles?

Do Now: What is the height of this equilateral triangle (simplest radical form)?



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 5^2 + x^2 &= 10^2 \\
 25 + x^2 &= 100 \\
 \underline{-25} \quad \underline{-25} \\
 x^2 &= 75 \\
 \sqrt{x^2} &= \sqrt{75} \\
 x &= \sqrt{25} \sqrt{3} \\
 \boxed{x} &= \boxed{5\sqrt{3}}
 \end{aligned}$$

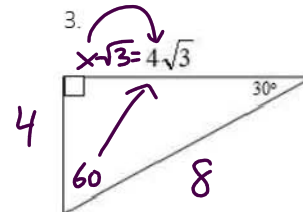
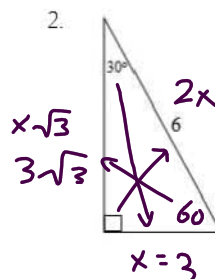
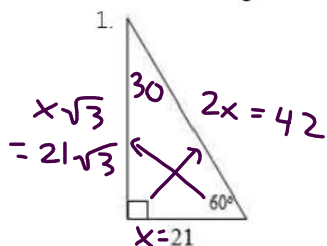
What is the height of this equilateral triangle (simplest radical form)?



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 4^2 + x^2 &= 8^2 \\
 16 + x^2 &= 64 \\
 \underline{-16} \quad \underline{-16} \\
 x^2 &= 48 \\
 \sqrt{x^2} &= \sqrt{48} \\
 x &= \sqrt{16} \sqrt{3} \\
 \boxed{x} &= \boxed{4\sqrt{3}}
 \end{aligned}$$

30°-60°-90° Triangle Side Lengths

Fill in the missing side lengths

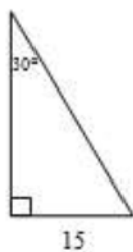


Now you try!

STEP 1: Fill in the missing angle values.

STEP 2: Fill in the missing side lengths of each triangle (simplest radical form):

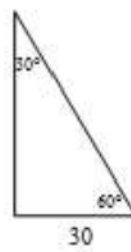
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5)



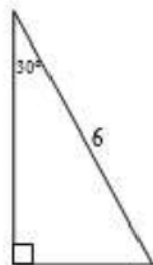
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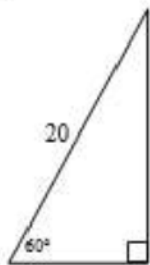
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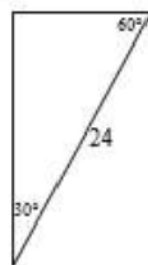
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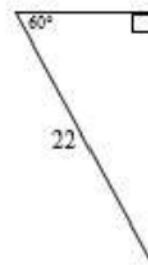
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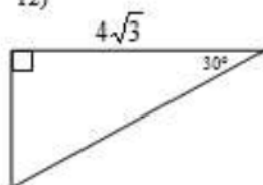
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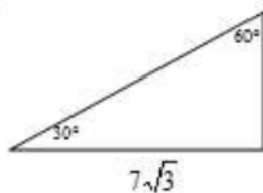
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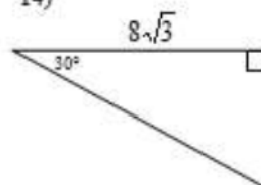
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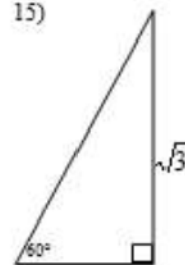
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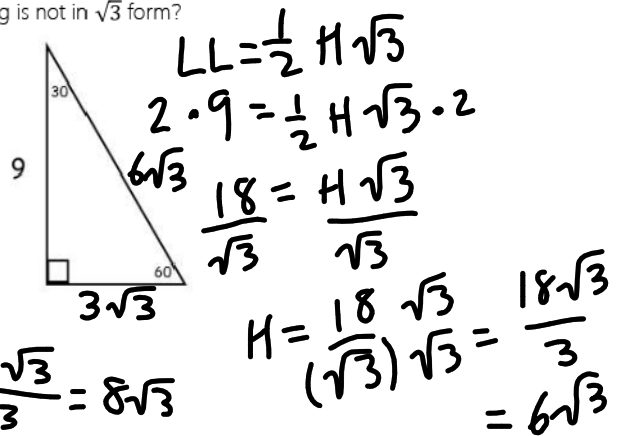
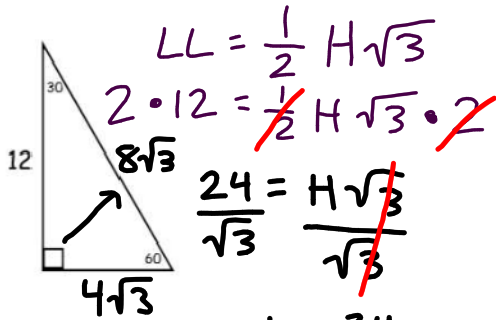
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15)

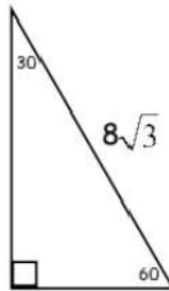
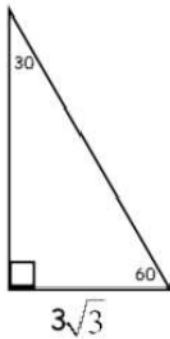


What if the long leg is not in  $\sqrt{3}$  form?



$H = \frac{24 \sqrt{3}}{(\sqrt{3}) \sqrt{3}} = \frac{24 \sqrt{3}}{3} = 8\sqrt{3}$

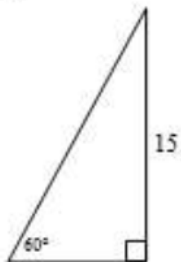
Or what if another side is in radical form?



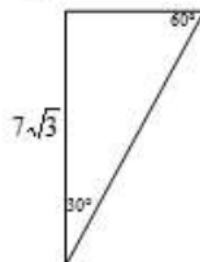
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17)



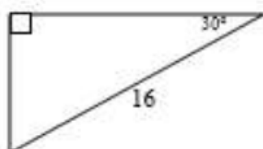
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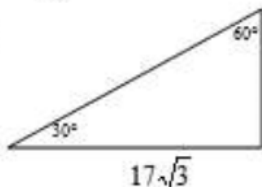
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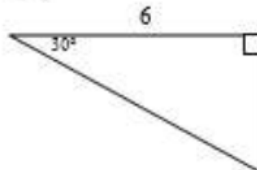
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21)



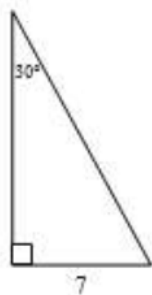
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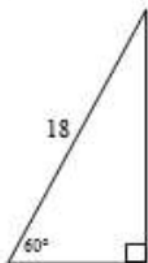
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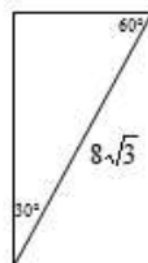
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25)



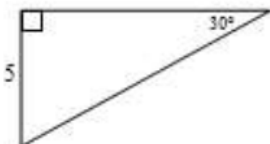
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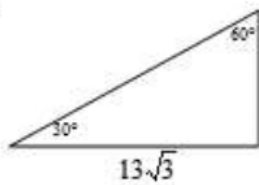
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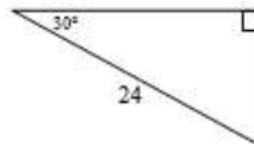
28)



29)



30)



31)

