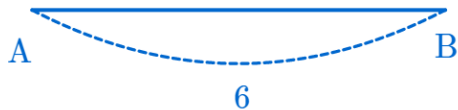


6-5-4 길이 삼각형의 넓이

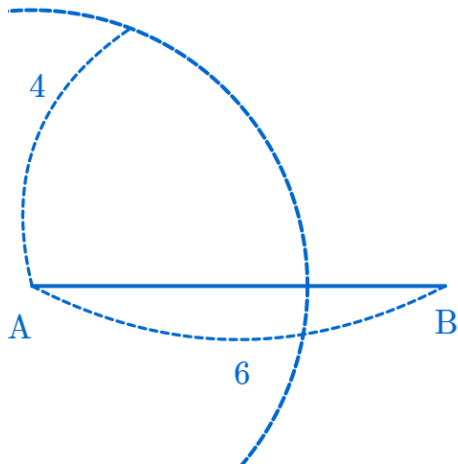
(The Area of 6-5-4 Length Triangles)

The Area of 6-5-4 Length Triangles

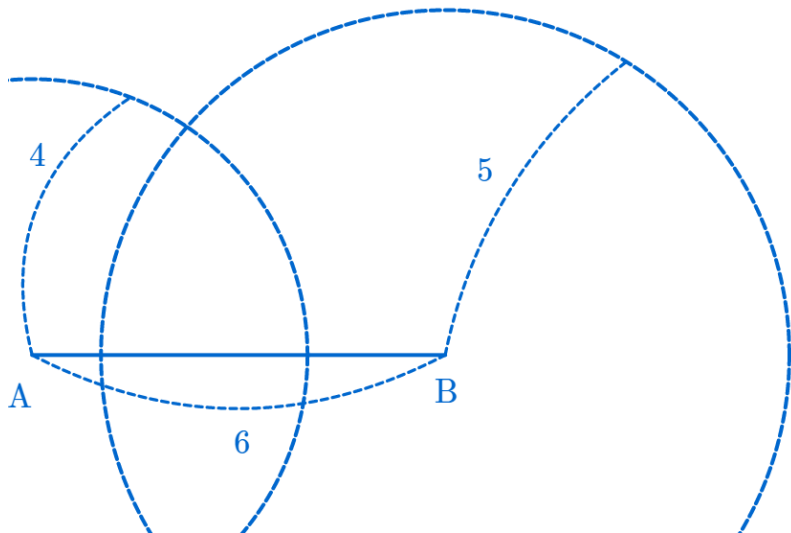
The Area of 6-5-4 Length Triangles



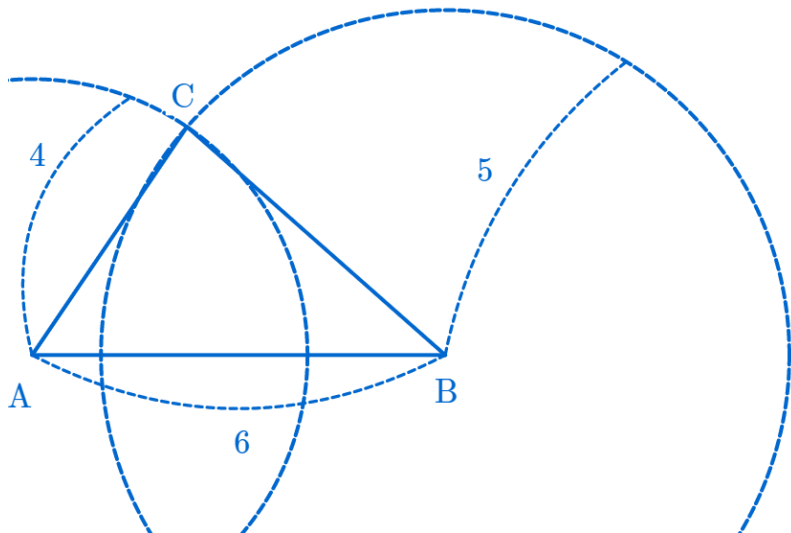
The Area of 6-5-4 Length Triangles



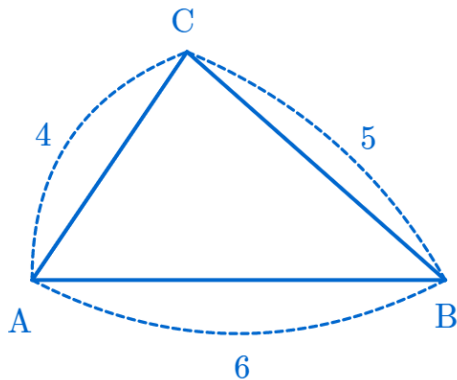
The Area of 6-5-4 Length Triangles



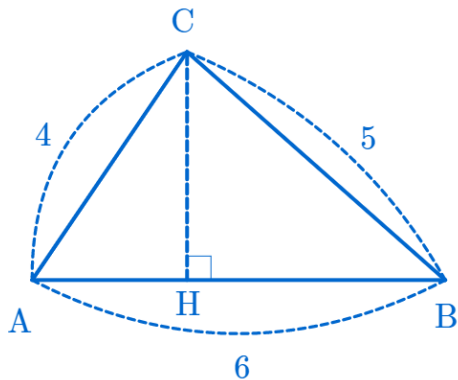
The Area of 6-5-4 Length Triangles



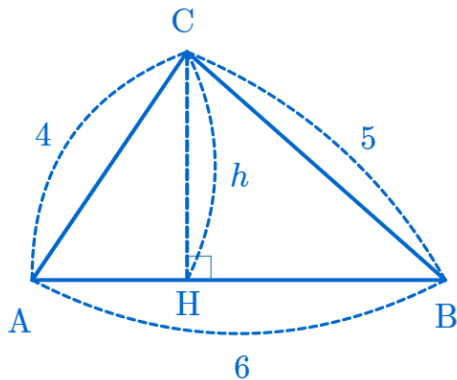
The Area of 6-5-4 Length Triangles



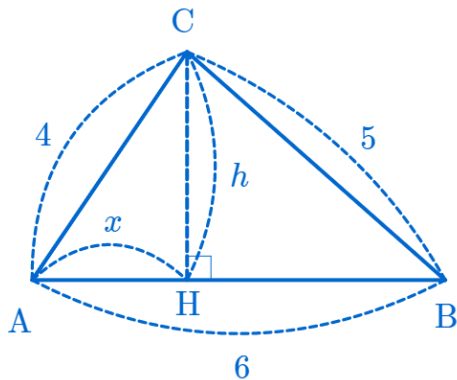
The Area of 6-5-4 Length Triangles



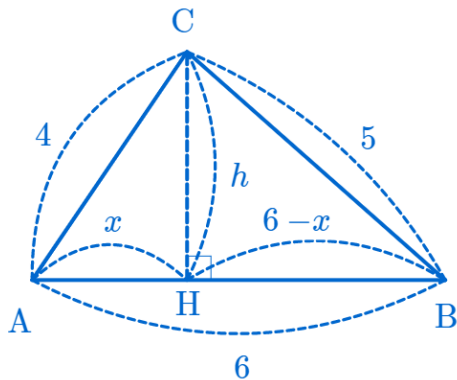
The Area of 6-5-4 Length Triangles



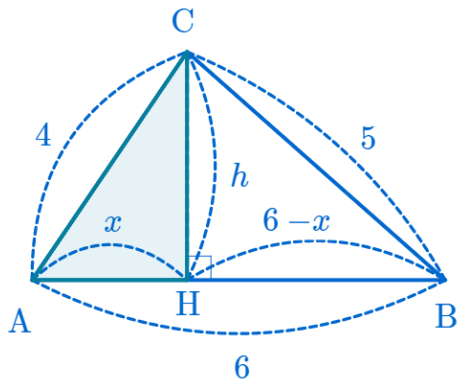
The Area of 6-5-4 Length Triangles



The Area of 6-5-4 Length Triangles

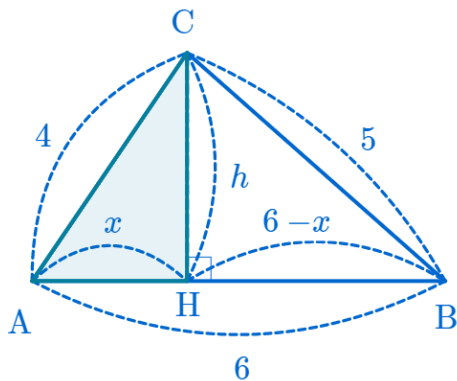


The Area of 6-5-4 Length Triangles



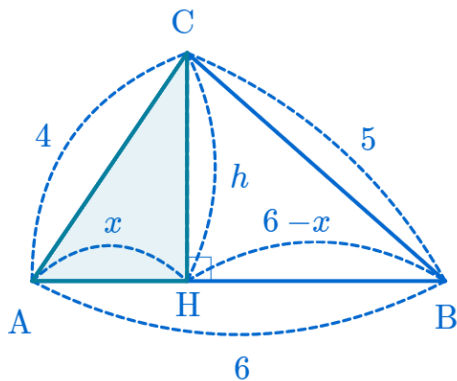
The Area of 6-5-4 Length Triangles

$$x^2 + h^2 = 4^2$$



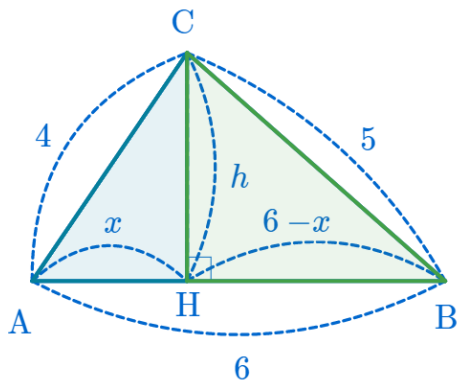
The Area of 6-5-4 Length Triangles

$$x^2 + h^2 = 4^2 \quad h^2 = 4^2 - x^2$$



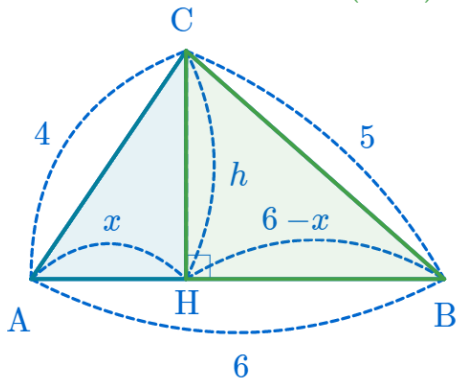
The Area of 6-5-4 Length Triangles

$$x^2 + h^2 = 4^2 \quad h^2 = 4^2 - x^2$$



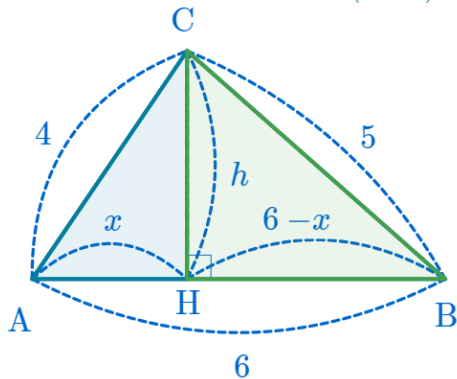
The Area of 6-5-4 Length Triangles

$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6 - x)^2 + h^2 &= 5^2\end{aligned}$$



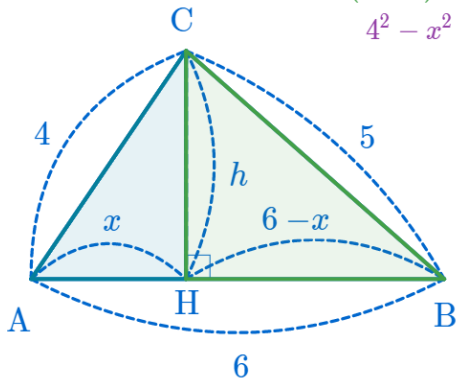
The Area of 6-5-4 Length Triangles

$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6-x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6-x)^2\end{aligned}$$

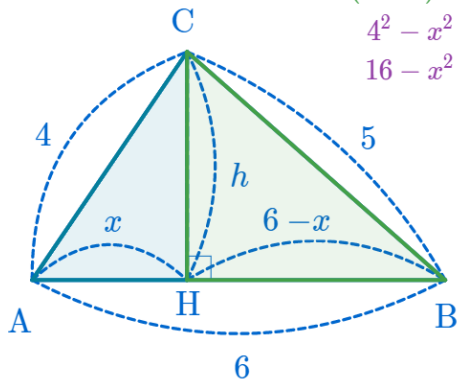


The Area of 6-5-4 Length Triangles

$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6-x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6-x)^2 \\4^2 - x^2 &= 5^2 - (6-x)^2\end{aligned}$$

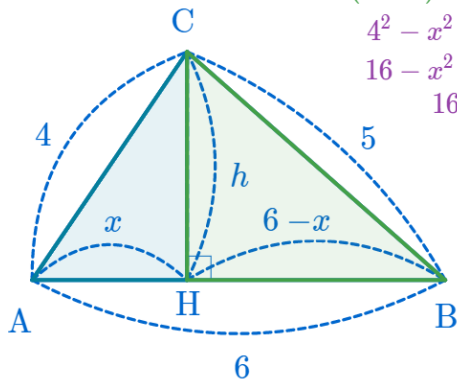


The Area of 6-5-4 Length Triangles



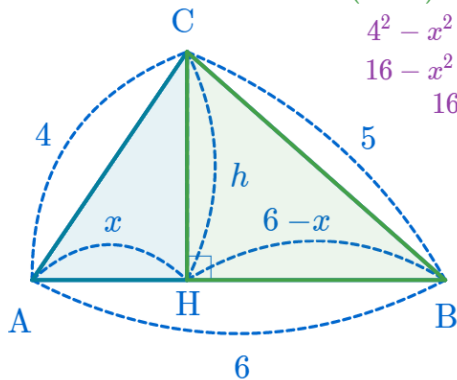
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6-x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6-x)^2 \\4^2 - x^2 &= 5^2 - (6-x)^2 \\16 - x^2 &= 25 - 36 + 12x - x^2\end{aligned}$$

The Area of 6-5-4 Length Triangles



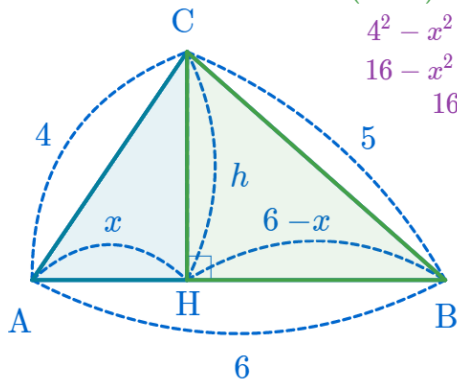
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6-x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6-x)^2 \\4^2 - x^2 &= 5^2 - (6-x)^2 \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x\end{aligned}$$

The Area of 6-5-4 Length Triangles



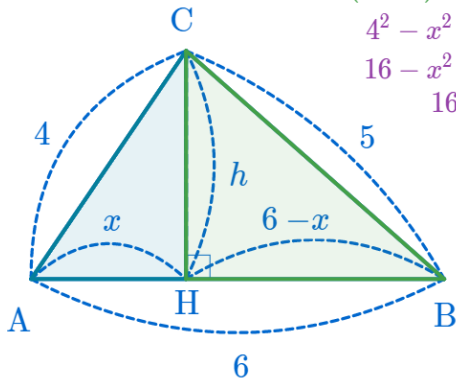
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6-x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6-x)^2 \\4^2 - x^2 &= 5^2 - (6-x)^2 \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x & 27 &= 12x\end{aligned}$$

The Area of 6-5-4 Length Triangles



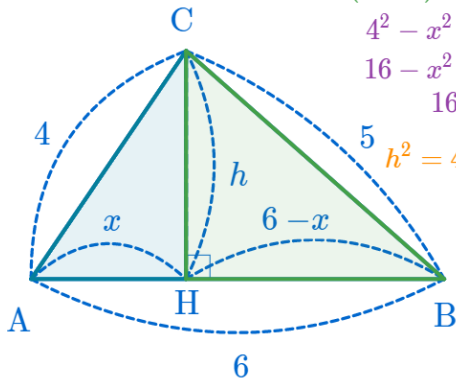
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\4^2 - x^2 &= 5^2 - (6 - x)^2 \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x & 27 &= 12x & 9 &= 4x\end{aligned}$$

The Area of 6-5-4 Length Triangles



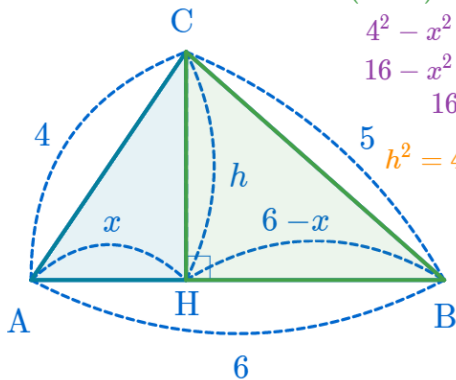
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x & 27 &= 12x & 9 &= 4x\end{aligned}$$

The Area of 6-5-4 Length Triangles



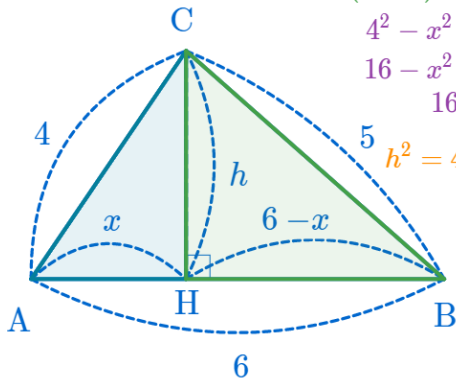
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\h^2 &= 4^2 - \left(\frac{9}{4}\right)^2\end{aligned}$$

The Area of 6-5-4 Length Triangles



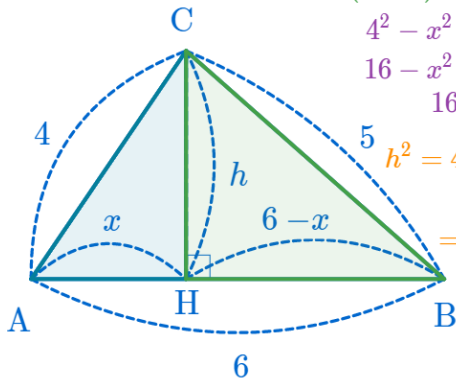
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16}\end{aligned}$$

The Area of 6-5-4 Length Triangles



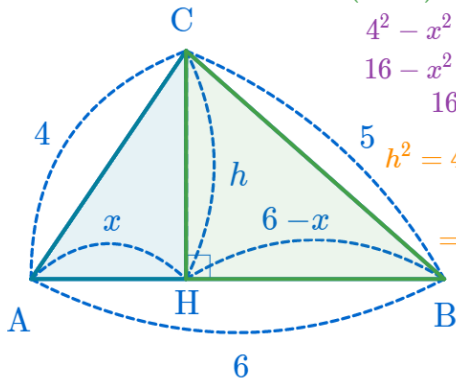
$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16}\end{aligned}$$

The Area of 6-5-4 Length Triangles



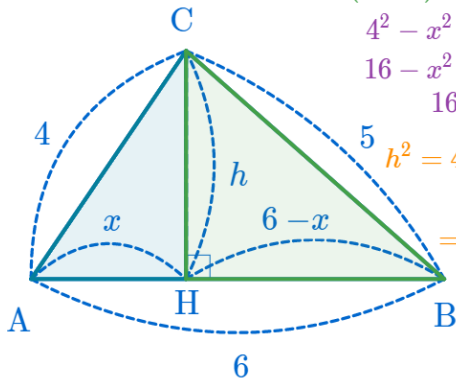
$$\begin{aligned}
 x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\
 (6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\
 4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\
 16 - x^2 &= 25 - 36 + 12x - x^2 \\
 16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\
 h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16} \\
 &= \frac{256 - 81}{16}
 \end{aligned}$$

The Area of 6-5-4 Length Triangles



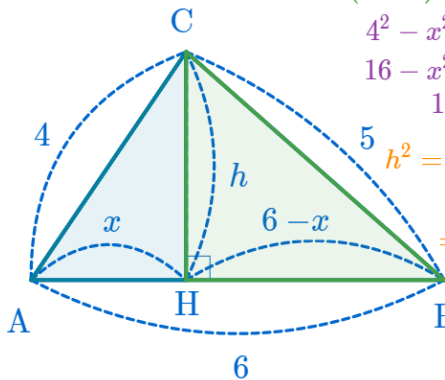
$$\begin{aligned}
 x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\
 (6-x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6-x)^2 \\
 4^2 - x^2 &= 5^2 - (6-x)^2 & \therefore x &= \frac{9}{4} \\
 16 - x^2 &= 25 - 36 + 12x - x^2 \\
 16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\
 h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16} \\
 &= \frac{256 - 81}{16} = \frac{175}{16}
 \end{aligned}$$

The Area of 6-5-4 Length Triangles



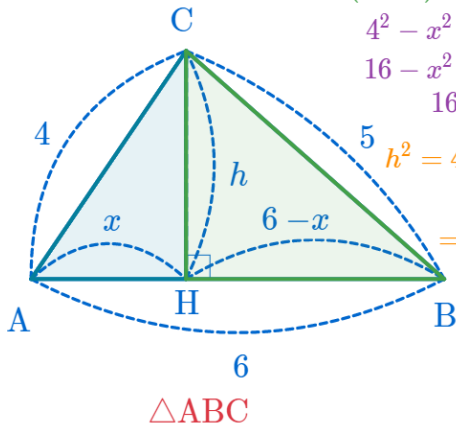
$$\begin{aligned}
 x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\
 (6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\
 4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\
 16 - x^2 &= 25 - 36 + 12x - x^2 \\
 16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\
 h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16} \\
 &= \frac{256 - 81}{16} = \frac{175}{16} = \frac{5^2 \cdot 7}{4^2}
 \end{aligned}$$

The Area of 6-5-4 Length Triangles



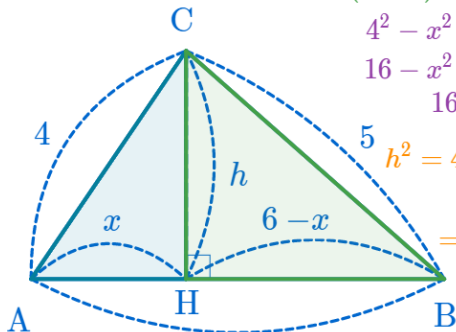
$$\begin{aligned}
 x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\
 (6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\
 4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\
 16 - x^2 &= 25 - 36 + 12x - x^2 \\
 16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\
 h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16} \\
 &= \frac{256 - 81}{16} = \frac{175}{16} = \frac{5^2 \cdot 7}{4^2} \\
 \therefore h &= \frac{5\sqrt{7}}{4} \quad (\because h > 0)
 \end{aligned}$$

The Area of 6-5-4 Length Triangles



$$\begin{aligned}x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\(6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\16 - x^2 &= 25 - 36 + 12x - x^2 \\16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16} \\&= \frac{256 - 81}{16} = \frac{175}{16} = \frac{5^2 \cdot 7}{4^2} \\ \therefore h &= \frac{5\sqrt{7}}{4} \quad (\because h > 0)\end{aligned}$$

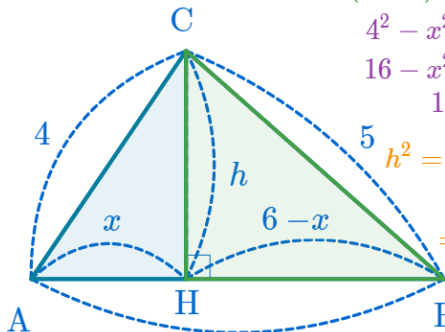
The Area of 6-5-4 Length Triangles



$$\begin{aligned}
 x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\
 (6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\
 4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\
 16 - x^2 &= 25 - 36 + 12x - x^2 \\
 16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\
 h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16} \\
 &= \frac{256 - 81}{16} = \frac{175}{16} = \frac{5^2 \cdot 7}{4^2} \\
 \therefore h &= \frac{5\sqrt{7}}{4} \quad (\because h > 0)
 \end{aligned}$$

$$\Delta ABC = \frac{1}{2} \times 6 \times \frac{5\sqrt{7}}{4}$$

The Area of 6-5-4 Length Triangles



$$\begin{aligned}
 x^2 + h^2 &= 4^2 & h^2 &= 4^2 - x^2 \\
 (6 - x)^2 + h^2 &= 5^2 & h^2 &= 5^2 - (6 - x)^2 \\
 4^2 - x^2 &= 5^2 - (6 - x)^2 & \therefore x &= \frac{9}{4} \\
 16 - x^2 &= 25 - 36 + 12x - x^2 \\
 16 &= -11 + 12x & 27 &= 12x & 9 &= 4x \\
 h^2 &= 4^2 - \left(\frac{9}{4}\right)^2 = 16 - \frac{81}{16} = \frac{16 \times 16 - 81}{16} \\
 &= \frac{256 - 81}{16} = \frac{175}{16} = \frac{5^2 \cdot 7}{4^2} \\
 \therefore h &= \frac{5\sqrt{7}}{4} \quad (\because h > 0)
 \end{aligned}$$

$$\triangle ABC = \frac{1}{2} \times 6 \times \frac{5\sqrt{7}}{4} = \frac{15\sqrt{7}}{4}$$

github:

<https://min7014.github.io/math20200116001.html>

Click or paste URL into the URL search bar, and you can see a picture moving.