Introduction to Trigonometry with Applications

AREA OF TRIANGLES – APPLICATION EXAMPLE

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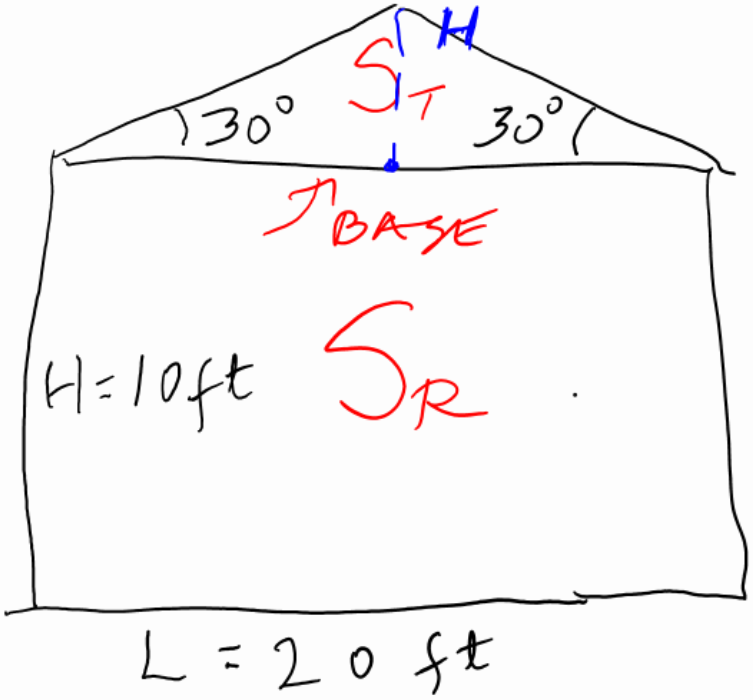
Application Example A:
Number of Bricks Needed for a Wall



Surface Area of Wall =

$S_W = S_R + S_T$

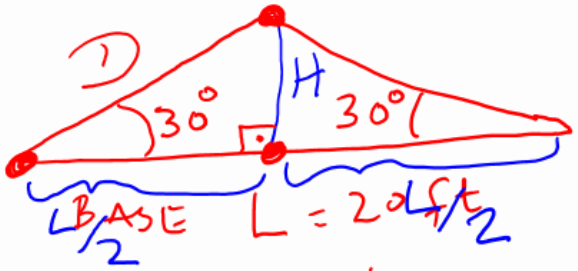
$S_R = L * H$

$S_T = ? = \frac{1}{2}$ ~~Base * H~~ L ?

H given the base length & 2 angles adjacent to the base

⇒ Laws of sine & cosine

Application Example B:
Number of Bricks Needed for a Wall



$\sin 30 = \frac{H}{D}$

$\cos 30 = \frac{L/2}{D}$

$D = \frac{L}{2} * \frac{1}{\cos 30}$

$\sin 30 = \frac{H}{\frac{L}{2} * \frac{1}{\cos 30}}$

$S_T = \frac{L * H}{2}$

$H = \frac{20}{2} * \frac{1}{\cos 30} * \sin 30^\circ \text{ ft}$

$H = 5.773 \text{ ft}$

$S_T = \frac{20 * 5.773}{2} \text{ ft}^2$

$S_T = 57.73 \text{ ft}^2$

$S_R = 20 \times 10 \text{ ft}^2 = 200 \text{ ft}$

257.73 ft^2

Application Example C:
Number of Bricks Needed for a Wall

$S_{BRICK} = S_B$

$S_B = 6 \times 3 \text{ in}^2$

$S_B = 18 \text{ in}^2$

$S_W = 257.73 \text{ ft}^2$

$\text{Number of Bricks} = \frac{S_W}{S_B}$

$N_B = \frac{257.73}{18} \frac{\text{ft}^2}{\text{in}^2} = 14.318 \frac{144 \text{ in}^2}{\text{in}^2}$

$N_B = 2061.84 \text{ bricks.}$

$N_B = 2062$