Answer on Question #48605 – Math – Geometry

American Gothic is 29 7/8 inches high x 24 7/8 inches wide. If the canvas you are going to paint a proportional reproduction is 24 inches high, then what width (to the nearest tenth) should the canvas measure?

Solution:

$H = 29\dfrac{7}{8} - height\ of\ the\ American\ Gothic;$

$W = 24\dfrac{7}{8} - width\ of\ the\ American\ Gothic;$

$h = 24\ inches - height\ of\ the\ canvas;$

$w - width\ of\ the\ canvas;$

The $ratio = \dfrac{width}{height}$ in first and in second case must be the same:

$$\frac{W}{H} = \frac{w}{h}$$

hence

$$w = \frac{W \cdot h}{H} = \frac{24\dfrac{7}{8} \cdot 24\ inches}{29\dfrac{7}{8}} = \frac{199 \cdot 24}{239} \approx 20\ inches$$

Answer: width of the canvas is $20\ inches$.