Question

Mr Burnett plans to have a picture measuring 18 3/8 by 12 1/4 custom framed. The frame he chose 2 1/8 wide. what will the new length and width of the picture plus the frame?

Solution

The new length will be

$$18\,\frac{3}{8} + 2 \cdot 2\,\frac{1}{8} = \frac{18 \cdot 8 + 3}{8} + 2 \cdot \frac{2 \cdot 8 + 1}{8} = \frac{147}{8} + 2 \cdot \frac{17}{8} = \frac{147 + 34}{8} = \frac{181}{8} = 22\,\frac{5}{8}\,.$$

The new width will be

$$12\,\frac{1}{4} + 2 \cdot 2\,\frac{1}{8} = \frac{12 \cdot 4 + 1}{4} + 2 \cdot \frac{2 \cdot 8 + 1}{8} = \frac{49}{4} + 2 \cdot \frac{17}{8} = \frac{49}{4} + \frac{17}{4} = \frac{49 + 17}{4} = \frac{66}{4} = \frac{33}{2} =$$

$$16\,\frac{1}{2} = 16.5\,.$$

Answer: $22\,\frac{5}{8}$, 16.5 .