

Exercise 144

In the following exercises, simplify.

$$-\frac{104}{48}$$

Solution

Write out the prime factorizations of 104 and 48.

$$\begin{aligned}104 &= 2 \times 52 \\ &= 2 \times 2 \times 26 \\ &= 2 \times 2 \times 2 \times 13\end{aligned}$$

$$\begin{aligned}48 &= 2 \times 24 \\ &= 2 \times 2 \times 12 \\ &= 2 \times 2 \times 2 \times 6 \\ &= 2 \times 2 \times 2 \times 2 \times 3\end{aligned}$$

Therefore,

$$-\frac{104}{48} = -\frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times 13}{\cancel{2} \times \cancel{2} \times \cancel{2} \times 2 \times 3} = -\frac{13}{2 \times 3} = -\frac{13}{6}.$$