

Exercise 146

In the following exercises, simplify.

$$\frac{182}{294}$$

Solution

Write out the prime factorizations of 182 and 294.

$$\begin{aligned} 182 &= 2 \times 91 \\ &= 2 \times 7 \times 13 \end{aligned}$$

$$\begin{aligned} 294 &= 2 \times 147 \\ &= 2 \times 3 \times 49 \\ &= 2 \times 3 \times 7 \times 7 \end{aligned}$$

Therefore,

$$\frac{182}{294} = \frac{\cancel{2} \times \cancel{7} \times 13}{\cancel{2} \times 3 \times \cancel{7} \times 7} = \frac{13}{3 \times 7} = \frac{13}{21}.$$