Answers to Practice Exercises for Chapter 10 – Rational Numbers

Set A - Question 2i

Note: The object is to divide numerator and denominator by common factors until they can't be made any smaller. The first working shown here goes to the answer in one step using the highest common factor. You may have divided by other common factors and arrived at the answer in more than one step. This is quite correct. 36 and 72 have a lot of factors, so not all alternatives are listed here. Also some of the alternative workings shown here may have the steps taken in a different order.

Dividing by the highest common factor, 36:

$$\frac{\mathbf{36} \div 36}{\mathbf{72} \div 36} = \frac{\mathbf{1}}{\mathbf{2}}$$

or in two steps using common factors 3 and 12:

$$\frac{\mathbf{36} \div 3}{\mathbf{72} \div 3} = \frac{12}{24} \text{ then } \frac{12 \div 12}{24 \div 12} = \frac{\mathbf{1}}{\mathbf{2}}$$

or in two steps using common factors 4 and 9:

$$\frac{\mathbf{36} \div 4}{\mathbf{72} \div 4} = \frac{9}{18} \text{ then } \frac{9 \div 9}{18 \div 9} = \frac{\mathbf{1}}{\mathbf{2}}$$

or in two steps using common factors 6 and 6 again:

$$\frac{\mathbf{36} \div 6}{\mathbf{72} \div 6} = \frac{6}{12} \text{ then } \frac{6 \div 6}{12 \div 6} = \frac{\mathbf{1}}{\mathbf{2}}$$

or in three steps using common factors 4, 3, and 3 again:

$$\frac{\mathbf{36} \div 4}{\mathbf{72} \div 4} = \frac{9}{18} \text{ then } \frac{9 \div 3}{18 \div 3} = \frac{3}{6} \text{ then } \frac{3 \div 3}{6 \div 3} = \frac{\mathbf{1}}{\mathbf{2}}$$

or in four steps using common factors 2, 2 again, 3, and 3 again:

$$\frac{\mathbf{36} \div 2}{\mathbf{72} \div 2} = \frac{18}{36} \text{ then } \frac{18 \div 2}{36 \div 2} = \frac{9}{18} \text{ then } \frac{9 \div 3}{18 \div 3} = \frac{3}{6} \text{ then } \frac{3 \div 3}{6 \div 3} = \frac{\mathbf{1}}{\mathbf{2}}$$