Solutions

2.1

- divide top and bottom by the HCF, 6: $\frac{18}{24} = \mathbf{\frac{3}{4}}$

2.2

- common denominator 12: $\frac{2}{3} + \frac{1}{4} = \frac{8}{12} + \frac{3}{12} = \mathbf{\frac{11}{12}}$

2.3

- $1\frac{1}{2} - \frac{3}{4} = \frac{3}{2} - \frac{3}{4} = \frac{6}{4} - \frac{3}{4} = \mathbf{\frac{3}{4}}$

2.4

- cancel first: 4 with 8 gives $\frac{1}{2}$, 3 with 9 gives $\frac{1}{3}$: $\frac{4}{9} \times \frac{3}{8} = \frac{1}{3} \times \frac{1}{2} = \mathbf{\frac{1}{6}}$

2.5

- improper fractions: $2\frac{1}{4} \div 1\frac{1}{2} = \frac{9}{4} \div \frac{3}{2}$
- multiply by the reciprocal: $\frac{9}{4} \times \frac{2}{3} = \frac{18}{12} = \frac{3}{2} = \mathbf{1\frac{1}{2}}$

2.6

- $56 \div 8 = 7$
- $7 \times 3 = \mathbf{21}$ kg

3.1

- improper fractions: $\frac{5}{3} + \frac{11}{4}$
- common denominator 12: $\frac{20}{12} + \frac{33}{12} = \frac{53}{12}$
- $53 = 4 \times 12 + 5$, so $\frac{53}{12} = 4\frac{5}{12}$

3.2

- $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times 2 = \frac{3}{2}$
- $\frac{3}{2} = 1\frac{1}{2}$ is **bigger** than $\frac{3}{4}$: dividing by a number less than 1 makes the answer bigger

3.3

- fraction spent: $\frac{2}{5} + \frac{1}{4} = \frac{8}{20} + \frac{5}{20} = \frac{13}{20}$
- fraction left: $1 - \frac{13}{20} = \mathbf{\frac{7}{20}}$

3.4

- number of glasses $= 2\frac{1}{4} \div \frac{3}{8} = \frac{9}{4} \div \frac{3}{8} = \frac{9}{4} \times \frac{8}{3} = \frac{72}{12} = \mathbf{6}$ glasses

3.5

- length cut: $4 \times \frac{5}{6} = \frac{20}{6} = \frac{10}{3} = 3\frac{1}{3}$ m
- length left: $3\frac{1}{2} - 3\frac{1}{3} = \frac{21}{6} - \frac{20}{6} = \mathbf{\frac{1}{6}}$ m