# Check Your Understanding

## Practise

**4.** Calculate.

**a)** $\frac{3}{4} - \frac{1}{2} \times \frac{2}{3}$ **b)** $2\frac{1}{5} \div \left(\frac{4}{5} - \frac{1}{4}\right)$

**c)** $3\frac{1}{2} + 2\frac{1}{2} \times \left(1\frac{1}{4} - \frac{3}{4}\right)$

**5.** Calculate.

**a)** $\left(\frac{5}{6} + \frac{2}{3}\right) \times \frac{3}{7}$ **b)** $\frac{1}{2} + \frac{3}{5} \div \frac{3}{4} \div \frac{2}{5}$

**c)** $1\frac{2}{5} \times 2\frac{1}{2} \div \left(1\frac{1}{8} - \frac{2}{3}\right)$

## Apply

**6.** Leo earns $16/h as a gardener in a city park. For time worked above 35 h in a week, he earns time-and-a-half. How much does he earn for each of the following numbers of hours worked in a week?

**a)** 36 h **b)** 39 h **c)** 42 h **d)** $37\frac{1}{2}$ h

**7.** Two thirds of the land on a farm is used for grazing beef cattle. The rest of the land is used to grow crops. Half of the land for crops is used to grow corn. What fraction of the land on the farm is used to grow corn?

**8.** Melissa and Shinzo found $\frac{1}{2}$ a pitcher of iced tea in the fridge. They equally shared $\frac{3}{4}$ of the iced tea.

**a)** What fraction of a pitcher of iced tea did each of them drink?

**b)** What fraction of a pitcher of iced tea was left over?

**9.** Five sevenths of the 28 students in a grade 8 class visited a science museum on a field trip. How many students did not go on the trip? Solve the problem in two different ways.

**10.** Brass is an alloy that contains the metals copper and zinc. Copper typically accounts for $\frac{3}{5}$ of the mass of a piece of brass.

**a)** What is the mass of copper in 175 g of brass?

**b)** What mass of brass contains 90 g of copper?

**c)** What mass of brass contains 50 g of zinc?

**11.** The advertising space in a hockey team's yearbook is sold in fractions of a page. The advertising space sold in one edition of the yearbook is shown in the table.

| Size of Advertisement | Price | Number Sold |
|---|---|---|
| $\frac{1}{2}$ page | $110 | 3 |
| $\frac{1}{4}$ page | $60 | 5 |
| $\frac{1}{8}$ page | $35 | 12 |

Calculate the following.

**a)** the total number of pages of advertising sold

**b)** the total revenue from advertising

**c)** the average revenue per page of advertising sold

**12.** One week, Marjorie spent $\frac{1}{2}$ of her allowance on a music video, $\frac{1}{4}$ of her allowance on a T-shirt, and $\frac{1}{8}$ of her allowance on bus fares. She had $5 of her allowance left at the end of the week. How much was her allowance that week?

**13.** Add one pair of brackets to the left side of each equation to make the equation true.

**a)** $\frac{5}{2} \times \frac{3}{5} - \frac{2}{5} + \frac{1}{2} = 1$

**b)** $1\frac{1}{2} + 2\frac{1}{2} \div \frac{3}{4} - \frac{1}{8} = 5\frac{1}{2}$

**c)** $\frac{2}{3} - \frac{1}{6} + \frac{5}{6} \div \frac{16}{9} = \frac{3}{4}$

**14.** Here is a way of using four $\frac{1}{2}$s and the order of operations to write an expression that equals 2.

$\frac{1}{2} \div \frac{1}{2} + \frac{1}{2} \div \frac{1}{2}$

Use four $\frac{1}{2}$s and the order of operations to write expressions with each of the following values. Compare your expressions with your classmates' expressions.

**a)** 0 **b)** 1 **c)** $\frac{1}{4}$

**d)** 3 **e)** $\frac{1}{2}$ **f)** 4

**g)** $\frac{5}{8}$ **h)** $\frac{5}{4}$ **i)** $2\frac{1}{2}$

## Extend

**15.** The mean of four fractions is $\frac{2}{3}$. Three of the fractions are $\frac{1}{3}$, $\frac{1}{2}$, and $\frac{3}{4}$. What is the fourth fraction?

### Literacy Link

The mean of a set of fractions is their sum divided by the number of fractions.

The mean of $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{1}{8}$ is $\left(\frac{1}{4} + \frac{1}{2} + \frac{1}{8}\right) \div 3$, which equals $\frac{7}{24}$.

**16.** There are $1\frac{4}{9}$ times as many white notes as black notes on a full-sized piano keyboard. There are 88 notes altogether. Determine the number of white notes and the number of black notes.

**17.** Pedro's CDs are stored in three full racks of different sizes. The small rack holds $\frac{1}{2}$ as many CDs as the medium rack. The medium rack holds $\frac{1}{2}$ as many CDs as the large rack. There are 224 CDs altogether. How many are in each rack?

## MATH LINK

About $\frac{1}{4}$ of the species of mammals that live in Canada can be found in the Taiga Shield ecozone. About 50 species of mammals can be found in this ecozone. How many species of mammals in Canada live outside the Taiga Shield ecozone?