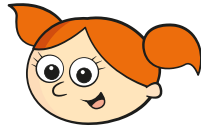**1**  Work out the calculations.

a)  $\dfrac{1}{3} + \dfrac{1}{3}$        $\dfrac{1}{29} + \dfrac{1}{29}$

$\dfrac{1}{15} + \dfrac{1}{15}$        $\dfrac{1}{x} + \dfrac{1}{x}$

b)

> To double a fraction you just double the numerator.

Do you agree with Alex?

Explain your answer.

**2**  Work out the calculations.

a)  $\dfrac{1}{5} + \dfrac{1}{5}$                b)  $\dfrac{1}{2} + \dfrac{1}{4}$

$\dfrac{6}{5} + \dfrac{6}{5}$                $\dfrac{1}{5} + \dfrac{1}{10}$

$\dfrac{29}{5} + \dfrac{29}{5}$                $\dfrac{1}{29} + \dfrac{1}{58}$

$\dfrac{x}{5} + \dfrac{x}{5}$                $\dfrac{1}{x} + \dfrac{1}{2x}$

**3**  Annie is calculating with algebraic fractions.

> I can work out $\dfrac{1}{k} + \dfrac{1}{k}$ because the denominator is the same, so $\dfrac{1}{k} + \dfrac{1}{k} = \dfrac{1+1}{k} = \dfrac{2}{k}$

Use Annie's method to complete the calculations.

a)  $\dfrac{3}{m} + \dfrac{4}{m}$                c)  $\dfrac{1}{p} - \dfrac{4}{p}$

b)  $\dfrac{12}{n} - \dfrac{5}{n}$

**4**  Here is an algebraic expression.

$$\dfrac{4}{r} + \dfrac{2}{r}$$

a)  Write the expression as a single fraction.

b)  Evaluate the expression when $r = 2$

c)  For what value of $r$ is $\dfrac{4}{r} + \dfrac{2}{r} > 1$?

Is there more than one answer?

**5**  Simplify the expressions.

a)  $\dfrac{1}{x} + \dfrac{1}{3x}$                b)  $\dfrac{2}{x} - \dfrac{3}{5x}$

Discuss your method with a partner.

**3**　Annie is calculating with algebraic fractions.

> I can work out $\frac{1}{k} + \frac{1}{k}$ because the denominator is the same, so $\frac{1}{k} + \frac{1}{k} = \frac{1+1}{k} = \frac{2}{k}$

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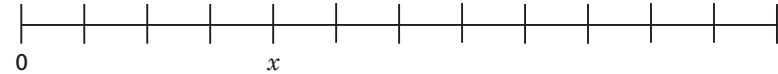
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**5**　Simplify the expressions.

a)　$\frac{1}{x} + \frac{1}{3x}$　　　　　　　b)　$\frac{2}{x} - \frac{3}{5x}$

Discuss your method with a partner.

**6**　The number line shows 0 and $x$.



0　　　　　　　　　　$x$

Position the expressions on the number line.

Write a simplified fraction where required.

a)　$2x$　　　　　　c)　$\frac{x}{4}$　　　　　　e)　$2x - \frac{3x}{4}$

b)　$\frac{x}{2}$　　　　　　d)　$\frac{x}{2} + \frac{x}{4}$　　　　　f)　$x + \frac{x}{2}$

**7**　a)　A sequence starts at zero and goes up by $\frac{a}{5}$ each term.

　　　Write the first five terms of the sequence.

　　b)　Another sequence starts at zero and goes up by $\frac{2a}{5}$ each term.

　　　Write the first five terms of this sequence.

**8**　Simplify the expressions using equivalent fractions.

a)　$\frac{x}{2} + \frac{x}{3}$　　　　　　　b)　$\frac{2x}{3} - \frac{x}{2}$

**9**　Solve the equations. Show all of your working.

a)　$\frac{1}{x} + \frac{3}{x} = 1$　　　　　b)　$\frac{3}{y} + \frac{5}{y} = 1$　　　　　c)　$\frac{11}{z} - \frac{9}{2z} = 1$

**10**　How would you simplify these expressions?

$$\frac{3}{2x} + \frac{1}{3x}$$　　　　　$$\frac{1}{t} + \frac{1}{2t} + \frac{1}{3t}$$