

Exercise W2.1

1. Write in their simplest forms:
 - (a) $a + 2 - 3a - 5 + 4a$
 - (b) $y + z - 2x + 3y - 2z$
 - (c) $5ay + 2a + 4y - 2ay$

2. Re-write the following without using the ' \times ' and ' \div ' signs, and find the numerical value of each when $a = 2$, $b = 3$ and $c = -4$:
 - (a) $-ax \div -by$
 - (b) $a \times x \div y \times b$
 - (c) $-ax \div cy \times (-bx)$

Exercise W2.2

1. Multiply out, and simplify:
 - (a) $-3(x + y) + 4(y - x)$
 - (b) $2(x + 1) - 3(x - \frac{2}{3})$
 - (c) $x(2y + z) - z(2y + x)$

2. Factorize the following, where possible:
 - (a) $5xy - 10x$
 - (b) $5x - 3xy - 4y$
 - (c) $2xy - 4zy + y$
 - (d) $4xyz - 2yz + 8xz$

Exercise W2.3

1. Express each of the following as a single algebraic fraction:

(a) $\frac{a}{b} - \frac{c}{d}$

(b) $\frac{ab}{c} + \frac{ac}{b}$

(c) $\frac{a}{b} + \frac{b}{ac} + \frac{c}{ab}$

(d) $\frac{2ab}{cd} - \frac{ab}{bc}$

2. Express each of the following as a single algebraic fraction, and simplify where possible:

(a) $\frac{ab}{c} \times \frac{bc}{d}$

(b) $\frac{a}{bc} \div \frac{b}{c+d}$

(c) $\frac{a}{a+b} \div \frac{b}{b+c}$

Exercise W2.4

1. Simplify where possible:

(a) $2(-a)^2$; $-2(-a)^2$; $-2(-a)^3$; $2(a)^2$

(b) $3u^2 \div 5u$

(c) $\frac{a^2}{b^3} \div \frac{a}{-b}$

2. Remove the brackets from the following:

(a) $\frac{(a+b)^3}{(a+b)^2}$

(b) $(x^{-\frac{1}{2}}y^{\frac{1}{2}})^2$

(c) $\frac{u^{\frac{1}{2}}v^{-\frac{1}{2}}}{u^{-\frac{1}{2}}v^{\frac{1}{2}}}$

(d) $\frac{(ab)^2}{bc}$