

Algebra 1

chapter

1

Section 1.8 Solving equations

PROJECT MATHS
Text & Tests 6

32

Solving linear equations

Example 1

Solve the linear equation $\frac{2t-3}{5} + \frac{1}{20} = \frac{t-1}{4}$.

$\times 20$	$4(2t-3) + 1 = 5(t-1)$
expand	$8t - 12 + 1 = 5t - 5$
$-5t, +11$	$8t - 11 = 5t - 5$
	$3t = 6$
	$\frac{3t}{3} = \frac{6}{3}$
	$t = 2$

3. Solve each of these equations.

(iii) $3(x - 1) - 4(x - 2) = 6(2x + 3)$ (iv) $3(x + 5) + 2(x + 1) - 3x = 22$

expand

$$3x - 3 - 4x + 8 = 12x + 18$$

Simplify

$$-x + 5 = 12x + 18$$

+x, -18

$$-13 = 13x$$

÷13

$$-1 = x$$

5. Find the value of the unknown in each of the following equations:

(i) $\frac{2a}{3} - \frac{a}{4} = \frac{5}{6}$

(ii) $\frac{b+2}{4} - \frac{b-3}{3} = \frac{1}{2}$

(iii) $\frac{3c-1}{6} - \frac{c-3}{4} = \frac{4}{3}$

LCD = 12, x12

$$3(b+2) - 4(b-3) = 6(1)$$

expand

$$3b + 6 - 4b + 12 = 6$$

Simplify

$$-b + 18 = 6$$

change signs

$$b - 18 = -6$$

+18

$$b = 12$$