$\frac{x}{5} = 3$

$\frac{3}{1} \cdot \frac{2}{3} = \frac{6}{3} = 2$

$\frac{5}{1} \cdot \frac{1}{5} \cdot x = 3 \cdot 5$

$x = 15$

$\frac{7}{1} \cdot \frac{5}{1} = \frac{35}{1} = 5$

$x - 4 = 9$

$x = 9 + 4$

$x = 13$

$x - 4 = 9$

$x - 4 + 4 = 9 + 4$

$x = 13$

$x = 13$

$13 - 4 = 9$

$4 + 13 - 4 = 9 + 4$

$17 - 4 = 9 + 4$

$13 = 13$

$\frac{2x}{5} = 8$

$\frac{5 \cdot 2x}{5} = 8 \cdot 5$

$10x = 40$

$\left(\frac{10}{10}\right)x = \frac{40}{10}$

$x = 4$

$x = 20$

$\frac{2 \cdot 20}{5} = 8$

$\frac{40}{5} = 8$

$8 = 8$

$\frac{2x}{5} = 8$

$\frac{5}{1} \cdot \frac{2x}{5} = 8 \cdot 5$

$10x = 40$

$\frac{10x}{5} = 40$

$2x = 40$

$\frac{2x}{2} = \frac{40}{2}$

$x = 20$

$\frac{x}{5} = 3$

$\frac{5}{1} \cdot \frac{x}{5} = \frac{3}{1} \cdot \frac{5}{1}$

$5x = 15$

$\frac{5x}{5} = 15$

$x = 15$

$26 \times 18 = (20+6)(10+8)$

$= 200 + 160 + 60 + 48$

$= 360 + 108$

$= 468$

$20 \times 14 = 20(10+4)$

$= 200 + 80$

$= 280$

$0.25 \times 15 = 0.25(10+5)$

$= 2.5 + 1.25$

$= 3.75$

$0.25 \times 15 = \frac{1}{4} \times \frac{15}{1}$

$= \frac{15}{4}$

$$2x = \frac{30-2x}{4}$$

$$4 \cdot 2x = \frac{30-2x}{4} \cdot \frac{4}{1}$$

$$8x = \frac{120-8x}{4}$$

$$\frac{8x}{2} = \frac{30-2x}{2}$$

$$4x = 15 - x$$

$$\frac{5x}{5} = \frac{15}{5}$$

$$x = 3$$

$$\frac{30x+6x}{2x} = \frac{3x+15}{x}$$

$$=$$

$$2x+2 = 8$$

$$2x = 6$$

$$x = 3 \quad \checkmark$$

$$\frac{2x+2}{2} = \frac{8}{2}$$

$$x+1 = 4$$

$$x = 3 \quad \checkmark$$

$$\frac{x-1}{2} = 4$$

$$x-1 = 8$$

$$x = 9$$

$$\frac{x}{2} - 1 = 4$$

$$(2)\frac{x}{2} = 5(2)$$

$$x = 10$$

$$2(x+2) = 8$$

$$2x+4 = 8$$

$$2x = 4$$

$$x = 2 \quad \checkmark$$

$$\frac{2(x+2)}{2} = \frac{8}{2}$$

$$x+2 = 4$$

$$x = 2 \quad \checkmark$$

$$2 \neq 3$$

$$\downarrow$$

$$4 - x \neq \frac{4+x}{2}$$

$$2(4-x) \neq \left(\frac{4+x}{2}\right)\frac{2}{1}$$

$$8 - 2x \neq \frac{8+2x}{2}$$

$$8 - 2x \neq 4 + x$$

$$8 \neq 4 + 3x$$

$$4 \neq \frac{3x}{3}$$

$$3 = 3$$

$$\downarrow$$

$$6 - x = \frac{2x}{2}$$

$$2(6-x) = \left(\frac{2x}{2}\right)\frac{2}{1}$$

$$12 - 2x = \frac{4x}{2}$$

$$12 - 2x = 2x$$

$$12 = 2x + 2x$$

$$\frac{12}{4} = \frac{4x}{4}$$

$$3 = x$$

$$5 \times 2 = 10$$

$$5 = \frac{10}{2}$$

$$3x = 15$$

$$\frac{3x}{3} = \frac{15}{3}$$

$$x = 5$$

$$\frac{x}{2} = 3$$

$$2\left(\frac{x}{2}\right) = 3(2)$$

$$x = 6$$

$$7 \times 3 = 21$$

$$7 = \frac{21}{3}$$

$$12x = 96$$

$$\frac{12x}{12} = \frac{96}{12}$$

$$x = 8$$

$$\frac{4}{x} = 2$$

$$(x)\frac{4}{x} = 2(x)$$

$$4 = 2x$$

$$\frac{4}{2} = \frac{2x}{2}$$

$$2 = x$$

$$12 - x = 5$$

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

$$12 = 5 + x$$

$$7 = 5 + x - 5$$

$$7 = x$$

$$12 - x = 5$$

$$12 - x - 12 = 5 - 12$$

$$-x = -7$$

$$-x(-1) = -7(-1)$$

$$x = 7$$

$$x + 7 = 15$$

$$-7x + 7 = 15 - 7$$

$$x = 8$$

$$10 = x - 32$$

$$10 + 32 = x - 32 + 32$$

$$42 = x$$

$$\frac{4x}{x} = 2x$$

Exercises

1) $\frac{2x}{5} = 8$ (5)

$2x = 40$

$x = 20$

2) $3 - \frac{x}{4} = 2$

$-\frac{x}{4} = -1$ (4)

$x = 4$

3) $\frac{5x+7}{3} = 6$

$5x + 7 = 18$

$5x = 11$

$x = \frac{11}{5} = 2.2$

$5 \overline{)11}$ 2.2, 10, 10

4) $4 - \frac{3x}{2} = 1$

$-\frac{3x}{2} = -3$

$-3x = -6$

$x = 2$

5) $\frac{x}{4} + 2 = 5$

$\frac{x}{4} = 3$

$x = 12$

6) $\frac{2x}{7} - 3 = 1$

$\frac{2x}{7} = 4$

$2x = 28$

$x = 14$

7) $\frac{4x+1}{5} = 3$

$4x + 1 = 15$

$4x = 14$

$x = \frac{14}{4} = \frac{7}{2} = 3.5$

$4 \overline{)14}$ 3.5, 12, 20

8) $\frac{3x}{4} + \frac{2}{3} = \frac{7}{6}$

$= \frac{7}{6} - \frac{2}{3} = \frac{14}{12} - \frac{8}{12} = \frac{6}{12}$

$= \frac{3}{6}$

$= 0.5$

$\frac{3x}{4} = 0.5$ (4)

$3x = 2$

$x = \frac{2}{3} = 0.66$

$3 \overline{)20}$ 0.66, 18, 20

- $\frac{6x}{9} = \frac{2x}{3}$

(3)

$2x = 2x$

$0 = 2x - 2x$

$0 = 0$

$2 \times 3 = 2 \times 3$

$6 = 6$

This shows that the two sides of the equation are identical, indicating that the equation holds true for all values of x. Therefore, the solution is:

$x \in R$

- $2x - 3 < 7$

$2x < 10$

$x < 5$

$2 \times 6 - 3 < 7$	$2 \times 5 - 3 < 7$
$12 - 3 < 7$	$10 - 3 < 7$
$9 < 7$ ✓	$7 < 7$ ✗

- $-3x \leq 12$

$x \geq -4$

$-3 \times -2 \leq 12$	$-3 \times -5 \leq 12$
$6 \leq 12$ ✓	$15 \leq 12$ ✗

- $2x + 1 \neq 5$

$2x \neq 4$

$x \neq 2$

$2 \times 4 + 1 \neq 5$	$2 \times 2 + 1 \neq 5$	$2 \times 1 + 1 \neq 5$
$9 \neq 5$ ✓	$5 \neq 5$ ✗	$3 \neq 5$ ✓