

1.2 Solving Multi-Step Equations p 12

* simplify each side of the equation if possible
(combine like terms CLT or distributive property d.p.)

* undo addition or subtraction first

* undo multiplication or division last
(Pemdas in reverse)

Examples

$$\begin{aligned} 1) \quad 1.5x + 15 &= 24 \\ -15 & \quad -15 \\ \hline 1.5x &= 9 \\ \frac{1.5x}{1.5} &= \frac{9}{1.5} \\ \boxed{x = 6} \end{aligned}$$

$$1.5 \overline{) 9.0} \quad 6$$

$$\begin{aligned} 2) \quad \text{CLT} \rightarrow 8x - 6x - 25 &= -35 \\ 2x - 25 &= -35 \\ +25 & \quad +25 \\ \hline 2x &= -10 \\ \frac{2x}{2} &= \frac{-10}{2} \\ \boxed{x = -5} \end{aligned}$$

$$\begin{aligned} 3) \quad 2(1 - 5x) + 4 &= -8 \\ \text{DP} \rightarrow 2 - 10x + 4 &= -8 \\ \text{CLT} \rightarrow 6 - 10x &= -8 \\ -6 & \quad -6 \\ \hline -10x &= -14 \\ \frac{-10x}{-10} &= \frac{-14}{-10} \\ \boxed{x = 1.4} &\text{ or } \frac{7}{5} \end{aligned}$$

$$\begin{aligned} 4) \quad 21 &= \frac{1}{2}t + 6 \\ -6 & \quad -6 \\ \hline \end{aligned}$$

$$\left(\frac{2}{1}\right) 15 = \left(\frac{2}{1}\right) \frac{1}{2}t$$

$$\boxed{30 = t}$$

$$\begin{aligned} 5) \quad 21(2 - x) + 12x &= 44 \\ 42 - 21x + 12x &= 44 \\ 42 - 9x &= 44 \\ -42 & \quad -42 \\ \hline -9x &= 2 \\ \frac{-9x}{-9} &= \frac{2}{-9} \\ \boxed{x = -\frac{2}{9}} \end{aligned}$$

* leave repeating decimals as fractions

$$6) \quad \frac{2}{3}h - \frac{1}{3}h + 11 = 8$$

$$\frac{1}{3}h + 11 = 8$$
$$\quad \quad \quad \underline{-11} \quad \underline{-11}$$

$$\left(\frac{3}{1}\right) \frac{1}{3}h = -3 \left(\frac{3}{1}\right)$$

$$\boxed{h = -9}$$

$$7) \quad \frac{\sqrt{9-4c}}{-19} = \frac{17}{-19}$$

$$\frac{-4c}{-4} = \frac{-2}{-4}$$

$$\boxed{c = \frac{1}{2}} \text{ or } 0.5$$