

Lesson 2

Algebra, Tame The Monster : Year 9

2.1 Multi-Step Equation Solving

Question : Solve the equation;

$$\frac{7x + 3}{5} + 4 = 13$$

Solution :

$$\begin{array}{rcl|l} \frac{7x+3}{5} + 4 = 13 & & & - 4 \\ \frac{7x+3}{5} = 9 & & & \times 5 \\ 7x + 3 = 45 & & & - 3 \\ 7x = 42 & & & \div 7 \\ x = 6 & & & \end{array}$$

2.2 Exercise

No need for a calculator when answering these questions

Question 1

(i) $\frac{3a}{4} + 7 = 13$

(ii) $\frac{3e}{2} + 4 = 10$

(iii) $\frac{2w}{3} + 5 = 11$

(iv) $\frac{3m}{2} - 11 = 1$

$$\text{(v) } \quad \frac{5t}{2} - 6 = 9$$

$$\text{(vi) } \quad \frac{4a}{3} + 3 = 23$$

$$\text{(vii) } \quad \frac{2c}{5} + 16 = 20$$

$$\text{(viii) } \quad \frac{5h}{6} - 3 = 7$$

$$\text{(ix) } \quad \frac{3e}{2} - 8 = 13$$

$$\text{(x) } \quad \frac{6t}{7} + 12 = 36$$

(xi) $\frac{3w}{7} + 42 = 51$

(xii) $7y - 37 = 103$

(xiii) $\frac{c}{5} + 49 = 58$

(xiv) $\frac{2v}{3} + 71 = 97$

(xv) $\frac{8d}{3} - 21 = 11$

(xvi) $\frac{5a}{4} + 239 = 259$

(xvii) $\frac{30e}{8} + 102 = 192$

(xviii) $\frac{20w}{6} - 55 = 65$

Question 2

The answers to these questions are fractions such as $\frac{2}{3}$ or $\frac{5}{7}$

Give the exact answer.

Do NOT give decimal approximations.

(i) $\frac{18m}{5} + 4 = 6$

(ii) $\frac{9t}{2} + 4 = 7$

(iii) $\frac{12h}{5} + 7 = 9$

(iv) $\frac{24w}{7} - 2 = 1$

$$\text{(v) } \quad \frac{35a}{3} - 3 = 2$$

$$\text{(vi) } \quad \frac{21c}{2} + 4 = 11$$

$$\text{(vii) } \quad \frac{50w}{3} + 6 = 21$$

$$\text{(viii) } \quad \frac{33a}{5} = 6$$

$$\text{(ix) } \quad 16m + 3 = 11$$

$$\text{(x) } \quad 12e - 3 = 5$$

$$\text{(xi) } \quad \frac{h}{3} = \frac{2}{9}$$

$$\text{(xii) } \quad \frac{48v}{5} + 1 = 10$$

$$\text{(xiii) } \quad \frac{42t}{5} - 2 = 2$$

$$\text{(xiv) } \quad \frac{24w}{5} = 18$$

$$\text{(xv) } \quad \frac{15h}{4} = 6$$

$$\text{(xvi) } \quad \frac{20d}{9} + 5 = 13$$

(xvii) $\frac{12e}{5} - 3 = 7$

(xviii) $\frac{15d}{8} - 18 = -8$

Question 3

No need for a calculator when answering these questions.

(i) $a + 7 = 13$

(ii) $e - 5 = 12$

(iii) $6f = 18$

(iv) $\frac{h}{4} = 8$

(v) $2t + 8 = 22$

(vi) $5c - 9 = 16$

(vii) $5y - 12 = 28$

(viii) $\frac{a}{3} + 13 = 18$

(ix) $\frac{m}{6} + 6 = 13$

(x) $\frac{w}{2} - 33 = 101$

(xi) $\frac{4c}{3} = 20$

(xii) $\frac{3t}{7} = 9$

(xiii) $\frac{2v}{5} = 32$

(xiv) $k + 3172 = 7406$

$$\text{(xv) } j - 3898 = 4264$$

$$\text{(xvi) } 3d = 1146$$

$$\text{(xvii) } \frac{h}{32} = 231$$

$$\text{(xviii) } \frac{2e}{3} + 15 = 23$$

$$\text{(xix) } \frac{4a}{5} - 4 = 12$$

$$\text{(xx) } \frac{5c}{2} + 21 = 101$$