Adding/subtracting, dividing, multiplying on both sides doesn't change the equations.

i) $x+2=6 \Rightarrow x+2-2=6-2 \Rightarrow x=4$

ii) $x+6=2 \Rightarrow x=2-4$

iii) $y+8=5 \Rightarrow y=-3$

iv) $x+4=-3 \Rightarrow x=-7$

v) $y+2=-8 \Rightarrow y=-10$

vi) $b+2.5=4.2 \Rightarrow b+2.5-2.5=4.2-2.5 \Rightarrow b=1.7$

vii) $p+4.6=8.5 \Rightarrow p=8.5-4.6 \Rightarrow p=3.9$

viii) $y+3.2=-6.5 \Rightarrow y=-6.5-3.2 \Rightarrow y=-9.7$

ix) $a+8.9=-12.6 \Rightarrow a=-12.6-8.9 \Rightarrow a=-21.5$

x) $x+2\frac{1}{3}=5 \Rightarrow x=5-\frac{7}{3} \Rightarrow x=\frac{15}{3}-\frac{7}{3}=\frac{8}{3} \Rightarrow x=\frac{8}{3}$

xi) $z+2=4\frac{1}{5} \Rightarrow z+2=\frac{21}{5} \Rightarrow z=\frac{21}{5}-2 \Rightarrow z=\frac{21}{5}-\frac{10}{5}$
$\Rightarrow z=\frac{11}{5}$

xii) $m+3\frac{1}{2}=4\frac{1}{4} \Rightarrow m+\frac{7}{2}=\frac{17}{4} \Rightarrow m=\frac{17}{4}-\frac{7}{2} \Rightarrow m=\frac{17}{4}-\frac{14}{4} \Rightarrow m=\frac{3}{4}$

xiii) $x+2=1\frac{1}{4} \Rightarrow x+2=\frac{5}{4} \Rightarrow x=\frac{5}{4}-2 \Rightarrow x=\frac{5}{4}-\frac{8}{4} \Rightarrow x=-\frac{3}{4}$

xiv) $y+6\frac{1}{3}=4 \Rightarrow y+\frac{19}{3}=4 \Rightarrow y=4-\frac{19}{3} \Rightarrow y=\frac{12}{3}-\frac{19}{3} \Rightarrow y=-\frac{7}{3}$

xv) $a+3\frac{1}{5}=1\frac{1}{2} \Rightarrow a+\frac{16}{5}=\frac{3}{2} \Rightarrow a=\frac{3}{2}-\frac{16}{5} \Rightarrow a=\frac{15}{10}-\frac{32}{10} \Rightarrow a=-\frac{17}{10}$

18/9

22 A

2.1 $x+3=1 \Rightarrow x+3-3=-1-3 \Rightarrow x=-4$

2.2 $x-4=-5 \Rightarrow x-4+4=-5+4 \Rightarrow x=-1$

2.3 $5x=25 \Rightarrow$

2.i) $x-3=2 \Rightarrow x-3+3=2+3 \Rightarrow x=5$

2.ii) $a-2.5=-4 \Rightarrow a-2.5+2.5=-4+2.5 \Rightarrow a=1.5$

2.vii) ~~$p-5.4=2.7$~~ $x-1.5=-0.9 \Rightarrow x-1.6+1.5=-0.9$
$1.5=x=-1.6$

2.viii) $n-4=4\frac{1}{5} \Rightarrow n-4=\frac{21}{5} \Rightarrow n=\frac{21}{5}+4 \Rightarrow n=\frac{21}{5}+\frac{20}{5}=\frac{41}{5} \Rightarrow n=\frac{41}{5}$

3.i) $2.5m=7.5 \Rightarrow 2.5m-2.5=7.5-2.5 \Rightarrow m=5$

3.v) $3.2p=16 \Rightarrow 3.2p-3.2=16-3.2 \Rightarrow p=12.8$

3.vi) $2a=4.6 \Rightarrow 2a-2=4.6-2 \Rightarrow a=2.6$

3.3 $3x=12 \Rightarrow x=\frac{12}{3} \Rightarrow x=4$ 3.ii) $2y=9 \Rightarrow y=\frac{9}{2} \Rightarrow y=4\frac{1}{2}$

3.iii) $5z=8.5 \Rightarrow z=\frac{8.5}{5}=\frac{85}{10} \times 5$ $z=1.7$

2.2 $m-2=5 \Rightarrow m=-5+2 \Rightarrow m=-3$

3 $b-5=7 \Rightarrow b=7+5 \Rightarrow b=12$

5 $y-3\frac{1}{2}=6 \Rightarrow y-\frac{7}{2}=6 \Rightarrow y=\frac{7}{2}-6 \Rightarrow y=\frac{12}{2}-\frac{7}{2} \Rightarrow y=\frac{5}{2}$

6 $z-2\frac{1}{3}=6 \Rightarrow z-\frac{7}{3}=6 \Rightarrow z=6+\frac{7}{3} \Rightarrow z=\frac{18}{3}+\frac{7}{3} \Rightarrow z=$

8 $x-1.5=-4.9 \Rightarrow x=-4.9+1.5 \Rightarrow x=3.4$

8/8

i) $\frac{x}{2} = 5 = \frac{x}{2\times2} = 5\times2 = x = 10$

ii) $\frac{y}{3} = -2 = \frac{y}{-3\times3} = -2\times3 = y = -6$

iii) $\frac{a}{5} = -15 = \frac{a}{5\times5} = -15\times5 = a = -75$

iv) $\frac{z}{4} = 3\frac{1}{4} = \frac{z}{4} = \frac{13}{4} = \frac{z}{4\times4} = \frac{13\times4}{4} = z = 13$

~~vi) $\frac{m}{6} = 2\frac{1}{2} = \frac{m}{6} = \frac{5}{2} = \frac{m\times6}{6}$~~

vii) $\frac{m}{6} = 2\frac{1}{2} \Rightarrow \frac{m}{6} = \frac{5}{2} \Rightarrow \frac{m\times6}{6} = \frac{5\times6^3}{21} \Rightarrow m = 15$

viii) $\frac{n}{7} = -2\cdot8 \Rightarrow \frac{n\times7}{7} = -2\cdot8\times7 = n = -19.6$

5. i) $-2x = 8 \Rightarrow \frac{-2x}{-2} = \frac{8}{-2} \Rightarrow x = -4$

ii) $-3\cdot5y = 14 \Rightarrow \frac{-3\cdot5y}{-3\cdot5} = \frac{14}{-3\cdot5} \Rightarrow \frac{-3\cdot5y}{-3\cdot5} = \frac{14^4}{-35_1} \Rightarrow$

$y = -4$

iii) $-5z = 4 \Rightarrow \frac{-5z}{-5} = \frac{4}{-5} \Rightarrow \frac{-5z}{-5} = \frac{4\cdot8}{-5_1} \Rightarrow z = -0.8$

iv) $-5 = a+3 \Rightarrow -5-3 = a+3-3 = -8 = a = a = -8$

v) $2 = p+5 \Rightarrow 2-5 = p+5-5 \Rightarrow -3 = p \Rightarrow p = -3$

v) $4.5 = m - 2.7 \Rightarrow 4.5 + 2.7 = m - 2.7 + 2.7$

$7.2 = m$

vi) $3\frac{2}{5} = x - 2\frac{1}{3} \Rightarrow 3\frac{2}{5} + 2\frac{1}{3} = x - 2\frac{1}{3} + 2\frac{1}{3} \Rightarrow \frac{17}{5} + \frac{7}{3} = x$

$+\frac{7}{3} \Rightarrow \frac{86}{15} = x$ or $5\frac{11}{15}$

vii) $5 = m + 3\frac{4}{7} \Rightarrow 5 = m + \frac{25}{7} \Rightarrow 5 - \frac{25}{7} = m + \frac{25}{7} - \frac{25}{7}$

$\frac{26}{7} \Rightarrow 1\frac{3}{7}$ or $\frac{10}{7}$

ix) $-2\frac{1}{5} = y - 4 \Rightarrow -\frac{11}{5} + \frac{4}{10} = y - 4 + 4 \Rightarrow \frac{22}{10} + \frac{4}{10} = y$

$= \frac{26}{10} = y$ or $2\frac{6}{10}$ $2\frac{3}{5}$

$\Rightarrow 2\frac{1}{5} = y - 4 \Rightarrow -\frac{11}{5} + 4 = y - 4 + 4$

$\Rightarrow -\frac{11}{5} = y$

$= 1\frac{2}{5} = y$