(6x-5)(B)

1) $\begin{array}{r} 3A \\ 25 \\ \hline BA \end{array}$

$A+5=2$
$A=2-5$
$=(-3)$ ✗

$A+5=12$
$A=7$

$A+5=22$
$A=(17)$ ✗

~~A=7 as~~
A=7 as 7+5=12. We want 2 at unit place and 1 is carry over. Now 3+2+1=6
B=6

Hence A=7 and B=6

$\begin{array}{r} 37 \\ +25 \\ \hline 62 \end{array}$

2) $\begin{array}{r} 98 \\ 4A \\ \hline CB3 \end{array}$

$8+A=3$
$A=3-8$
$=(-5)$ ✗

$8+A=13$
$A=13-8$
$=5$

$8+A=23$
$A=23-8$
$=(15)$ ✗

A=5 as 8+5=13. We want 3 at unit place and 1 is carry over. Now. 9+4+1=14

A=5, B=4, C=1

3) $\begin{array}{r} A1 \\ 1B \\ \hline B0 \end{array}$

$1+B=0$
$B=0-1$
$=-1$

$1+B=10$
$B=10-1$
$=9$

$1+B=20$
$B=20-1$
$=19$

$\Rightarrow A+1=9 \Rightarrow A=9-1=8 \Rightarrow$

A=9 as 1+9=10. We want 0 at unit place and 1 is carry over. Now ~~8~~+1+1=9
A=7, B=9

4) 2AB

$$\begin{array}{r} 2\,A\,B \\ A\,B\,1 \\ \hline B\,1\,8 \end{array}$$

$B+1=8$
$B=8-1$
$=(7)$ ✓

$B+1=18$
$B=18-1$
$=(17)$ ✗

$B=7$ as $=7+1=8$

$A+7=1$
$A=1-7$
$=(-6)$ ✗

$A+7=11$
$A=11-7$
$=(4)$ ✓

$A+7=21$
$A=21-7$
$=14$

$A=4$ as $4+7=11$

We want 1 at ten's place and 1 is carry over
Now $2+4+1=7$

5)

$$\begin{array}{r} 1\,2\,A \\ 6\,A\,B \\ \hline A\,0\,9 \end{array}$$

$=2+A=0$
$A=0-2$
$=(-2)$ ✗

$2+A=10$
$A=10-2$
$=(8)$ ✓

$2+A=20$
$A=20-2$
$=(18)$ ✗

$A=8$ as $2+8=10$

$A+B=9$
$8+B=9$
$B=9-8$
$=(1)$ ✓

$8+B=19$
$B=19-8$
$=(8)$ ✗

$B=1$

We want 0 at tens place and 1 is carry over
Now $1+6+1=8$ and $8+P=9$

$$\begin{array}{r} 1\,2\,8 \\ +\;6\,8\,1 \\ \hline 8\,0\,9 \end{array}$$

6) $\begin{array}{r} 1A \\ \times\ A \\ \hline 9A \end{array}$

$A \times A = A$

~~$5 \times 5 \neq 25$~~ ~~OR~~ $6 \times 6 = 36$

As we need ~~6~~ ~~6~~ A at unit place and 9 at ten's place
$A = 6$ as $6 \times 6 = 36$

$\begin{array}{r} 16 \\ \times\ 6 \\ \hline 96 \end{array}$

7) $\begin{array}{r} AB \\ \times\ 6 \\ \hline BBB \end{array}$

$B \times 6 = B$

$4 \times 6 = 24$

$A * 6 = ?$

$7 \times 6 + 2 = 42 + 2 = 44$

As we want B at unit, tens and hundred place
$A = 7, B = 4$ as $4 \times 6 = 24$

$\begin{array}{r} {}^{2}74 \\ \times\ 6 \\ \hline 444 \end{array}$

8) $\begin{array}{r} AB \\ \times\ 3 \\ \hline CAB \end{array}$

$B \times 3 = B$

$0 \times 3 = 0$

$A \times 3 \neq B$

$5 \times 3 = 15$

$C = 1$

$A = 5, B = 0, C = 1$

$\begin{array}{r} 50 \\ \times\ 3 \\ \hline 150 \end{array}$

9) $\begin{array}{r} AB \\ \times\ \ 5 \\ \hline CAB \end{array}$

$B \times 5 = B$ $\quad A \times 5 = A$

$0 \times 5 = 0$ $\quad 5 \times 5 = 25$ $\quad C = 2$

$B = 0, A = 5, C = 2$

$\begin{array}{r} 50 \\ \times\ \ 5 \\ \hline 250 \end{array}$

10) $\begin{array}{r} 8A5 \\ 94A \\ \hline 1A33 \end{array}$

$5 + A = 3$ $\quad 5 + A = 13$ $\quad 5 + A = 23$

$A = 3 - 5$ $\quad A = 13 - 5$ $\quad A = 23 - 5$

$= (-2)$ ✗ $\quad = (8)$ ✓ $\quad = (18)$ ✗

$A = 8$ as $5 + 8 = 13$

$A = 8$ as $8 + 4 + 1 = 13$

$8 + 9 + 1 = 18$

$\begin{array}{r} 885 \\ +\ 948 \\ \hline 1833 \end{array}$

11) $\begin{array}{r} 6AB5 \\ D58C \\ \hline 9351 \end{array}$

$C + 5 = 1$ $\quad C + 5 = 11$ $\quad C + 5 = 21$

$= C = 1 - 5$ $\quad C = 11 - 5$ $\quad -C = 21 - 5$

$= (-4)$ ✗ $\quad = 6$ $\quad = 16$

$\therefore C = 11 - 5 = 6$

~~and $8 + B + 1 =$~~ $\quad 8 + B + 1 = 5$ $\quad 9 + B = 15$ $\quad 9 + B = 25$

$= 9 + B = 5$ $\quad B = 15 - 9$ $\quad B = 25 - 9$

$= B = 5 - 9$ $\quad = (6)$ ✓ $\quad = (16)$ ✗

$= (-4)$ ✗

$\therefore B = 15 - 9 = 6$

$A + 6 = 3$

$A = 3 - 6$

$= -3$ ✗

$A + 6 = 13$

$A = 13 - 6$

$= 7$ ✓

$A + 6 = 23$

$A = 23 - 6$

$= 17$ ✗

$\therefore A = 13 - 6 = 7$

$D + 6 + 1 = 9$

$D + 7 = 9$

$D = 9 - 7$

$= 2$ ✓

$D + 7 = 19$

$D = 19 - 7$

$= 12$ ✗

$\therefore D = 9 - 7 = 2$

$A = 7, B = 6, C = 6, D = 2$

$$\begin{array}{r} 6765 \\ +\ 2586 \\ \hline 9351 \end{array}$$