

***** **Mathematical Weekly** *****
 (week six)

Mathematical Pyramids

$$\begin{aligned}
 1 \times 9 + 2 &= 11 \\
 12 \times 9 + 3 &= 111 \\
 123 \times 9 + 4 &= 1111 \\
 1234 \times 9 + 5 &= 11111 \\
 12345 \times 9 + 6 &= 111111 \\
 123456 \times 9 + 7 &= 1111111 \\
 1234567 \times 9 + 8 &= 11111111 \\
 12345678 \times 9 + 9 &= 111111111 \\
 123456789 \times 9 + 10 &= 1111111111
 \end{aligned}$$

$$\begin{aligned}
 1 \times 1 &= 1 \\
 11 \times 11 &= 121 \\
 111 \times 111 &= 12321 \\
 1111 \times 1111 &= 1234321 \\
 11111 \times 11111 &= 123454321 \\
 111111 \times 111111 &= 12345654321 \\
 1111111 \times 1111111 &= 1234567654321 \\
 11111111 \times 11111111 &= 123456787654321 \\
 111111111 \times 111111111 &= 12345678987654321
 \end{aligned}$$

$$\begin{aligned}
 8 \times 1 &+ 1 = 9 \\
 8 \times 12 &+ 2 = 98 \\
 8 \times 123 &+ 3 = 987 \\
 8 \times 1234 &+ 4 = 9876 \\
 8 \times 12345 &+ 5 = 98765 \\
 8 \times 123456 &+ 6 = 987654 \\
 8 \times 1234567 &+ 7 = 9876543 \\
 8 \times 12345678 &+ 8 = 98765432 \\
 8 \times 123456789 &+ 9 = 987654321
 \end{aligned}$$

$$\begin{aligned}
 9 \times 9 &+ 7 = 88 \\
 9 \times 98 &+ 6 = 888 \\
 9 \times 987 &+ 5 = 8888 \\
 9 \times 9876 &+ 4 = 88888 \\
 9 \times 98765 &+ 3 = 888888 \\
 9 \times 987654 &+ 2 = 8888888 \\
 9 \times 9876543 &+ 1 = 88888888 \\
 9 \times 98765432 &+ 0 = 888888888
 \end{aligned}$$

$$\begin{aligned}
 9 \times 9 &= 81 \\
 99 \times 99 &= 9801 \\
 999 \times 999 &= 998001 \\
 9999 \times 9999 &= 99980001 \\
 99999 \times 99999 &= 9999800001 \\
 999999 \times 999999 &= 999998000001
 \end{aligned}$$

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