

***** **Mathematical Weekly** *****
(week 20)

$$\begin{aligned} 123456789 &= 61728395^2 - 61728394^2 \\ &= 20576133^2 - 20576130^2 \\ &= 6858715^2 - 6858706^2 \\ &= 18917^2 - 15310^2 \\ &= 18133^2 - 14330^2 \\ &= 11115^2 - 294^2 \end{aligned}$$

$$\begin{aligned} 987654321 &= 493827161^2 - 493827160^2 \\ &= 164609055^2 - 164609052^2 \\ &= 54869689^2 - 54869680^2 \\ &= 29048665^2 - 29048648^2 \\ &= 9682911^2 - 9682860^2 \\ &= 3227705^2 - 3227552^2 \\ &= 1708889^2 - 1708600^2 \\ &= 570015^2 - 569148^2 \\ &= 191161^2 - 188560^2 \end{aligned}$$

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$$\begin{aligned} 123458769 &= 11113^2 - 200^2 \\ 123547689 &= 11117^2 - 200^2 \\ 124958736 &= 11356^2 - 2000^2 \\ 124858736 &= 12695^2 - 6017^2 \\ 124958736 &= 16260^2 - 11808^2 \\ 152976384 &= 12372^2 - 300^2 \end{aligned}$$

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$$967854321 = 31111^2 - 200^2$$

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$11826^2 = 139854276$	$19629^2 = 385297641$	$25059^2 = 627953481$
$12363^2 = 152843769$	$20316^2 = 412739856$	$25572^2 = 653927184$
$12543^2 = 157326849$	$22887^2 = 523814769$	$25941^2 = 672935481$
$14676^2 = 215384976$	$23019^2 = 529874361$	$26409^2 = 697435281$
$15681^2 = 245893761$	$23178^2 = 537219684$	$26733^2 = 714653289$
$15963^2 = 254817369$	$23439^2 = 549386721$	$27129^2 = 735982641$
$18072^2 = 326597184$	$24237^2 = 587432169$	$27273^2 = 643816529$
$19023^2 = 361874529$	$24276^2 = 589324176$	$29034^2 = 842973156$
$19377^2 = 375468129$	$24441^2 = 597362481$	$29106^2 = 847159236$
$19569^2 = 382945761$	$24807^2 = 615387249$	$30384^2 = 923187456$