No Calculators!

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| Problem One  * 142857 х 1 = * 142857 х 2 = * 142857 х 3 = * 142857 х 4 =   … and so on  What do you notice? | **Problem Two**   * 112 * 1112 * 11112 * 111112   … and so on  What happens? Why? |
| **Problem Three**   * 3.32 * 3.332 * 3.3332 * 3.33332   … and so on  What happens? Why? | **Problem Four**  Investigate the decimal equivalents of:   * 1/7, 2/7, 3/7, … * 1/13, 2/13, 3/13, … * 1/81 |
| **Problem Five**  What is the smallest number with 10 factors? | **Problem Six**  Multiply the triangular numbers {1, 3, 6, 10 etc…} by 8 and add 1.  What numbers do you get? |
| **Problem Seven**  How do you calculate 65²?  60 x 70 = 4200  4200 + 25 = 4225  So 65² = 4225  How do you calculate 145²?  140 x 150 = 21000  21000 + 25 = 21025  So 145² = 21025  Does this always work?  Try with 15², 45² | **Problem Eight**  Pick any three-digit number  Repeat it twice to make a six digit number (e.g. if you chose 973, you would now have 973973)   * Divide by 7 * Divide by 11 * Divide by 13   What do you notice?  Does this always happen? Why? |