SAMPLE ACTIVITIES TAKEN FROM Don't Toss Out Four Function Calculators: Explore Concept Meaning Instead

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Does Your Calculator Handle Properties Properly?

Does your calculator have AOS or should you shout SOS?

$$3 + 5 \times 4 \div 6 - 3 = ??$$

Does your calculator approximate, round, or truncate?

$$5 \div 3 \times 3 = ??$$

Does your calculator preserve commutativity?

$$4 \times 6 = 6 \times 4 \quad \text{or} \quad 4 + 5 = 5 + 4$$

Is Percent commutative on your calculator?

6 X 50 % = 50 % X 6 ??

Is Square Root the inverse of multiplying a number by itself?

35.6 x 35.6 = 1267.36

1267.36 SQR = ??

How does your calculator handle larger products?

40007 X 30003 = ??

E 12.003300 ??

A BIGGER Calculator

52645 X 7983 = E 4.2026503

3 X 5 = 15

98542 X 81086 = E 79.903766

86 X 42 = 3612

“+” and “x” Fact Checker

Enter “ON/C” then “4” then “+” then “=“

The calculator is now a +4 machine. Try it.

Enter “5” and hit “=“ to get a “9” in the display. No matter what you enter, the calculator will add 4 to that number when you hit “=“

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Enter “ON/C” then “7” then “x” then “=“

This calculator is now a x7 machine. Try it.

Enter “3” and hit “=“ to get a “21” in the display. No matter what you enter, the calculator will times it by 7 when you hit “=“

Rounding the Corner to Estimation

Round each number to the nearest 1000 and then find the sum

12415

12642

14291

14875

24862

KEY = 79000

Using the "SELF-CHECK" for D/P

1. The average of 1000, 92, 86, and 90 ____
2. The product of 674 and 817 ____
3. The result of 96 x 15 + 317 ____
4. The greatest common factor of 36 and 48 ____
5. The value of 5/16 of 608 ____
6. The difference between 7209.3 and 3647.8 ____
7. The result of 1x2x3x4x5x6x7x8 ____
8. The least common multiple of 15 and 20 ____
9. The ratio of 8:9990 can be written as 8/?? ____
10. The product of 2, 2, 3, 3, 7, 13, and 13 ____
11. The result of 36 x 29.5 x 48 x 6.25 ____
12. The sum of 7438.7 and 18903.6 and 4068.2 ____
13. The result of 84 x 26 – 264 – 462 ____
14. The quotient of 24108 divided by 246 ____
15. The sum of 117.5 and 87 ½ ____

KEY 1,000,000

PICK AND LEARN MULTIPLICATION ESTIMATION

Choose two numbers from anywhere in the matrix below that will earn two points on the product scale below. Once a number is used, it can't be used again.

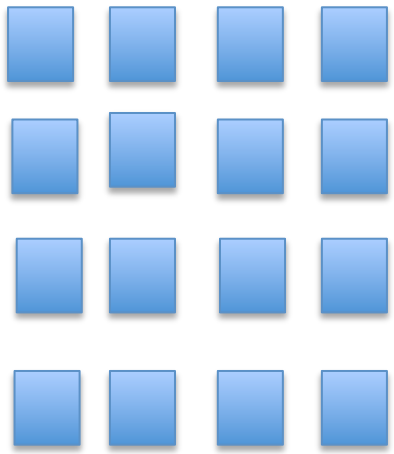
0____1 point____10000____2 points____20000___1 point____

58	91	119
171	126	88
13	324	687
1125	21	197

Square Root Algorithm

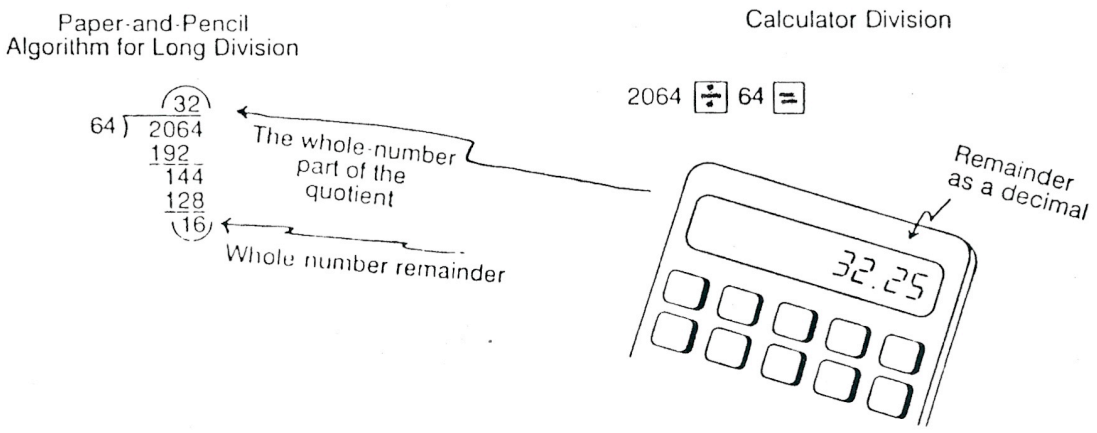
25 – 1 =
24 – 3 =
21 – 5 =
16 – 7 =
9 – 9 =

1, 4, 9, 16, 25, 36, …



16 – 1 =
15 – 3 =
12 – 5 =
7 – 7 =

Remainders



Here is one approach for determining the whole-number remainder when you divide with a calculator:

(1) Press 2064 ÷ 64 =.
(2) Read and remember the whole-number part of the display, 32.
(3) Press 32 × 64 − 2064 =.
(4) The remainder is 16. Ignore the negative sign on the display. (Notice that $16 \div 64 = 0.25$.)

Some of the following problems can be solved by finding the whole-number remainder. Use your calculator.

1. You have 876 marbles to pack in bags of 16 marbles each. How many marbles will be left over after you fill as many bags as you can?

2. Six hundred Boy Scouts will travel to camp on buses. Each bus will carry 64 scouts. How many buses will be needed to carry all of the scouts?

Memory

On many calculators, four keys operate a special memory: 

- M+ adds the number shown on the display to the memory.
- M− subtracts the number shown in the display from the memory.
- MR displays (recalls) the accumulated total in the memory.
- MC clears the memory (but, on some calculators, not the display).

Note: Some calculators combine MC and MR on one key. Also, some calculators use an "all clear" AC key.

Try these experiments and see if you display the given result. Clear both the memory and the display before each exercise.

1. $16 \times 7 + 17 \times 6$ Result: 214
Press 16 × 7 = M+ 17 × 6 = M+ RM.

2. $55 \times 5 - 44 \times 4$ Result: 99
Press 55 × 5 = M+ 44 × 4 = M− MR

$\frac{514}{125} - \frac{20}{32}$ Result: 3.487
(Use M− after 20 ÷ 32.)

$$\frac{627 + 84 \times 17}{137}$$
Result: 15

Suppose you have 16 pages of stamps with 24 stamps on each page and 37 pages with 19 stamps on each page. How many stamps do you have in all?

There are 7 months with 31 days, 4 months with 30 days, and one month with 28 days. How many days in all?

USE THE CALCULATOR TO COMPUTE THE ANSWER;

$$\frac{11}{15} + \frac{7}{8}$$

$$\frac{A}{B} + \frac{C}{D}$$

$$\frac{AD}{BD} + \frac{CB}{DB} = \frac{AD}{BD} + \frac{BC}{BD} = \frac{AD + BC}{BD}$$

$$\frac{11 \times 8 + 15 \times 7}{15 \times 8}$$

$$\frac{88 + 105}{120}$$

$$\frac{193}{120}$$

$$\frac{5}{6} \; \begin{matrix} + \\ \times \\ (\div) \end{matrix} \; \frac{3}{4}$$

Addition / Multiplication

$\frac{5}{6} \rightarrow 5006$ $\qquad$ $\frac{3}{4} \rightarrow 3004$

$5006 \times 3004 = 15038024$

$\underline{15} \; 0 \; \underline{38} \; 0 \; \underline{24}$

$$\frac{5}{6} + \frac{3}{4} = \frac{38}{24}$$

$$\frac{5}{6} \times \frac{3}{4} = \frac{15}{24}$$

Division

(invert and proceed as in multiplication)

$$\frac{A}{B} \; + \; \frac{C}{D}$$

$$\times \quad (\div)$$

$A \circ\circ B \times C \circ\circ D =$

$(1000A+B) \times (1000C+D) =$

$1000000AC + 1000AD + 1000BC + BD$

$AC000000 + AD000 + BC000 + BD$

$$\begin{array}{r} AC\,0\,00\,000 \\ AD\,000 \\ BC\,000 \\ +\quad BD \\ \hline AC\,0\,(AD+BC)\,0\,BD \end{array}$$

$AC \;\; 0 \;\; AD+BC \;\; 0 \;\; BD$

$$\frac{A}{B} + \frac{C}{D} = \frac{AD+BC}{BD}$$

$$\frac{A}{B} \times \frac{C}{D} = \frac{AC}{BD}$$

$$\frac{A}{B} + \frac{C}{D} =$$

$$\frac{A}{B} \cdot \frac{D}{D} + \frac{C}{D} \cdot \frac{B}{B} =$$

$$\frac{AD}{BD} + \frac{CB}{DB} =$$

$$\frac{AD}{BD} + \frac{BC}{BD} =$$

$$\frac{AD+BC}{BD}$$

$$\frac{A}{B} \times \frac{C}{D} =$$

$$\frac{AC}{BD}$$

$$\frac{5}{6} - \frac{3}{4}$$

SubTraction

$\frac{5}{6} \rightarrow 5006$ $\quad$ $\frac{3}{4} \rightarrow 3004$

$5006 \times 3004 = 15038024$

$2000 \times 6 \times 3 = 36000$

$\times$? $\quad$ $\frac{5}{6}$ $\quad$ $\frac{3}{4}$

$15038024 - 36000 = 15002024$

15 0 02 0 24

$\frac{5}{6} - \frac{3}{4} = \frac{2}{24}$

$$\frac{A}{B} - \frac{C}{D}$$

$A00B \times C00D =$

$(1000A+B)(1000C+D) =$

$1000000\,AC + 1000\,AD$

$+ 1000\,BC + BD$

$AC000000 + AD000 + BC000 + BD$

$$\begin{array}{r} AC\,000000 \\ AD\,000 \\ BC\,000 \\ +\quad BD \\ \hline AC0(AD+BC)0BD \end{array}$$

$2000 \times B \times C = 2 \times 1000 \times B \times C$

$= 2 \times BC000$

$AC0(AD+BC)0BD - [2 \times BC000] =$

$AB0(AD-BC)0BD$

$$\frac{A}{B} - \frac{C}{D} = \frac{AD-BC}{BD}$$

$$\frac{A}{B} - \frac{C}{D} =$$

$$\frac{A}{B}\cdot\frac{D}{D} - \frac{C}{D}\cdot\frac{B}{B} =$$

$$\frac{AD}{BD} - \frac{CB}{DB} =$$

$$\frac{AD}{BD} - \frac{BC}{BD} =$$

$$\frac{AD-BC}{BD}$$

The calculator has the answers

- It can provide instant feedback
- It can reduce individual differences
- It can help marry concepts and skills
- It can make real world connections
- It can save time for important outcomes
- It can allow for new and interesting approaches to concepts and meaning