

Error Patterns and Algorithms.

name: _____

For each problem, analyze what the student is doing, do the next 2 computations *the way the student would do them*, and then explain.

Addition examples:

1.

$\begin{array}{r} 346 \\ +572 \\ \hline 819 \end{array}$	$\begin{array}{r} 764 \\ +135 \\ \hline 899 \end{array}$	$\begin{array}{r} 782 \\ +819 \\ \hline 1115 \end{array}$	$\begin{array}{r} 625 \\ +837 \\ \hline 1912 \end{array}$	$\begin{array}{r} 749 \\ +825 \\ \hline \end{array}$	$\begin{array}{r} 362 \\ +854 \\ \hline \end{array}$
--	--	---	---	--	--

Explain the pattern, and why it works or doesn't work.

2.

$\begin{array}{r} 467 \\ +395 \\ \hline 767 \end{array}$	$\begin{array}{r} 743 \\ +191 \\ \hline 843 \end{array}$	$\begin{array}{r} 621 \\ +145 \\ \hline 721 \end{array}$	$\begin{array}{r} 781 \\ +465 \\ \hline \end{array}$	$\begin{array}{r} 934 \\ +189 \\ \hline \end{array}$
$857 \rightarrow 862$	$843 \rightarrow 933 \rightarrow 934$	$721 \rightarrow 761 \rightarrow 766$		

Explain the pattern, and why it works or doesn't work.

3.

$\begin{array}{r} 74 \\ +13 \\ \hline 87 \end{array}$	$\begin{array}{r} 65 \\ +49 \\ \hline 1014 \end{array}$	$\begin{array}{r} 38 \\ +16 \\ \hline 414 \end{array}$	$\begin{array}{r} 276 \\ +193 \\ \hline 3169 \end{array}$	$\begin{array}{r} 74 \\ +68 \\ \hline \end{array}$	$\begin{array}{r} 781 \\ +465 \\ \hline \end{array}$
---	---	--	---	--	--

Explain the pattern, and why it works or doesn't work.

4.
$$\begin{array}{r} 523 \\ + 678 \\ \hline 1201 \end{array}$$

$$\begin{array}{r} 658 \\ + 391 \\ \hline 1049 \end{array}$$

$$\begin{array}{r} 792 \\ + 186 \\ \hline 978 \end{array}$$

$$\begin{array}{r} 459 \\ + 183 \\ \hline 562 \end{array}$$

$$\begin{array}{r} 934 \\ + 189 \\ \hline \end{array}$$

$$\begin{array}{r} 781 \\ + 465 \\ \hline \end{array}$$

Explain the pattern, and why it works or doesn't work.

5.
$$\begin{array}{r} 468 \\ + 394 \\ \hline 7513 \end{array}$$

$$\begin{array}{r} 783 \\ + 572 \\ \hline 266 \end{array}$$

$$\begin{array}{r} 849 \\ + 387 \\ \hline 1317 \end{array}$$

$$\begin{array}{r} 434 \\ + 189 \\ \hline \end{array}$$

$$\begin{array}{r} 783 \\ + 659 \\ \hline \end{array}$$

Explain the pattern, and why it works or doesn't work.

6. Choose one of the addition *errors* in the examples above, and write about how you would help the student correct that error.

a. Which example are you focusing on? _____

b. If you were to go back to using manipulatives (such as base 10 blocks) to help the child fix his or her error, describe what that might look and sound like.

Subtraction Examples:

7.
$$\begin{array}{r} 356 \\ -179 \\ \hline 200 \\ -23 \\ \hline 177 \end{array}$$

$$\begin{array}{r} 412 \\ -172 \\ \hline 300 \\ -60 \\ \hline 240 \end{array}$$

$$\begin{array}{r} 32 \\ -18 \\ \hline 20 \\ -6 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 439 \\ -145 \\ \hline 304 \\ -10 \\ \hline 294 \end{array}$$

$$\begin{array}{r} 434 \\ -189 \\ \hline \end{array}$$

$$\begin{array}{r} 627 \\ -264 \\ \hline \end{array}$$

Explain the pattern, and why it works or doesn't work.

8.
$$\begin{array}{r} 742 \\ -359 \\ \hline 417 \end{array}$$

$$\begin{array}{r} 826 \\ -352 \\ \hline 534 \end{array}$$

$$\begin{array}{r} 692 \\ -438 \\ \hline 266 \end{array}$$

$$\begin{array}{r} 835 \\ -254 \\ \hline \end{array}$$

$$\begin{array}{r} 914 \\ -527 \\ \hline \end{array}$$

Explain the pattern, and why it works or doesn't work.

9.
$$\begin{array}{r} 5 \\ \cancel{8}02 \\ -259 \\ \hline 353 \end{array}$$

$$\begin{array}{r} 210 \\ \cancel{3}87 \\ -129 \\ \hline 188 \end{array}$$

$$\begin{array}{r} 3 \\ \cancel{4}05 \\ -137 \\ \hline 278 \end{array}$$

$$\begin{array}{r} 803 \\ -269 \\ \hline \end{array}$$

$$\begin{array}{r} 501 \\ -135 \\ \hline \end{array}$$

Explain the pattern, and why it works or doesn't work.

10.
$$\begin{array}{r} 51 \\ 28 \\ -54 \\ \hline 2014 \end{array}$$

$$\begin{array}{r} 61 \\ 173 \\ -29 \\ \hline 144 \end{array}$$

$$\begin{array}{r} 519 \\ 189 \\ -36 \\ \hline 1213 \end{array}$$

$$\begin{array}{r} 717 \\ 387 \\ -54 \\ \hline 3213 \end{array}$$

$$\begin{array}{r} 294 \\ -62 \\ \hline \end{array}$$

$$\begin{array}{r} 254 \\ -39 \\ \hline \end{array}$$

Explain the pattern, and why it works or doesn't work.

11.
$$\begin{array}{r} 539 \\ -274 \\ \hline 345 \end{array}$$

$$\begin{array}{r} 786 \\ -549 \\ \hline 243 \end{array}$$

$$\begin{array}{r} 524 \\ -156 \\ \hline 433 \end{array}$$

$$\begin{array}{r} 642 \\ -537 \\ \hline \end{array}$$

$$\begin{array}{r} 743 \\ 382 \\ \hline \end{array}$$

$$\begin{array}{r} 623 \\ -159 \\ \hline \end{array}$$

Omit Problem 11

12. Choose one of the *subtraction errors* in the examples above, and write about how you would help the student correct that error.

a. Which example are you focusing on? _____

b. If you were to go back to using manipulatives (such as base 10 blocks) to help the child fix his or her error, describe what that might look and sound like.