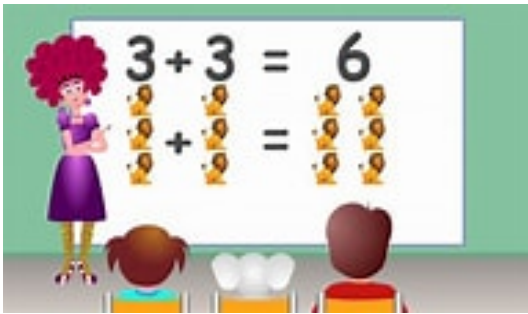


Curriculum Outcome

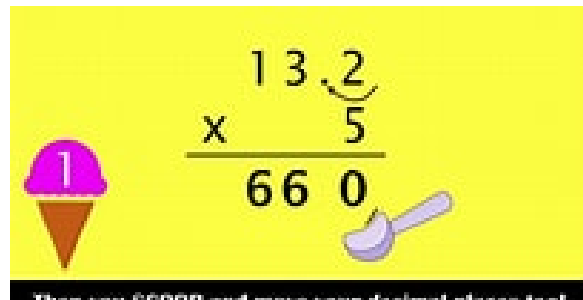
- (PR 5) Demonstrate an understanding of polynomials (limited to of degree less than or equal to 2).
- (PR 6) Model, record and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially and symbolically (limited to polynomials of degree less than or equal to 2).
- (PR 7) Model, record and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially and symbolically.

Student Friendly:

"Multiplying polynomials by a constant "



Lets Go "Old School"



Addition without a Calculator

$$\begin{array}{r} 1 1 \\ 726 \\ + 587 \\ \hline 1313 \end{array}$$

Addition without a Calculator

$$\begin{array}{r} 1 1 1 1 \\ 15928 \\ + 9672 \\ \hline 25600 \end{array}$$

Multiplication without a Calculator

$$\begin{array}{r}
 816 \\
 \times 7 \\
 \hline
 5712
 \end{array}$$

	800	10	6
7	5600	70	42

$$\begin{array}{r}
 1 \\
 5600 \\
 + 70 \\
 + 42 \\
 \hline
 5712
 \end{array}$$

Multiplication without a Calculator

$$\begin{array}{r}
 254 \\
 \times 58 \\
 \hline
 2032 \\
 12700 \\
 \hline
 14732
 \end{array}$$

	200	50	4
50	10000	2500	200
8	1600	400	32

$$\begin{array}{r}
 1 \\
 10000 \\
 + 2500 \\
 + 200 \\
 + 1600 \\
 + 400 \\
 + 32 \\
 \hline
 14732
 \end{array}$$

Multiplication without a Calculator

$\begin{array}{r} 943 \\ \times 819 \\ \hline 8487 \\ 29430 \\ 754400 \\ \hline 772317 \end{array}$	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"></td> <td style="width: 60px;">900</td> <td style="width: 60px;">40</td> <td style="width: 60px;">3</td> </tr> <tr> <td style="border-top: 1px solid black;">800</td> <td style="border-top: 1px solid black;">720 000</td> <td style="border-top: 1px solid black;">32 000</td> <td style="border-top: 1px solid black;">2400</td> </tr> <tr> <td>10</td> <td>9 000</td> <td>400</td> <td>30</td> </tr> <tr> <td>9</td> <td>8 100</td> <td>360</td> <td>27</td> </tr> </table>		900	40	3	800	720 000	32 000	2400	10	9 000	400	30	9	8 100	360	27
	900	40	3														
800	720 000	32 000	2400														
10	9 000	400	30														
9	8 100	360	27														

	211
	720 000
+	32 000
+	2 400
+	9 000
+	400
+	30
+	8 100
+	360
+	27
	772 317



1) 45 789

+ 8 231



2) 1 5 9

x 4 4 2



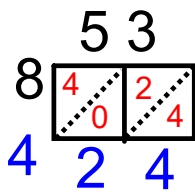
$$1) \begin{array}{r} 45\,789 \\ + 8\,231 \\ \hline \end{array}$$

$$+ \quad 8\,231$$

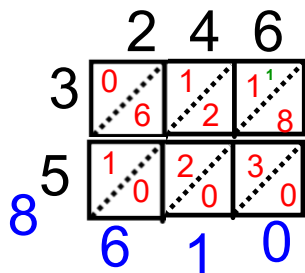
LONG MULTIPLICATION

- Lattice Method

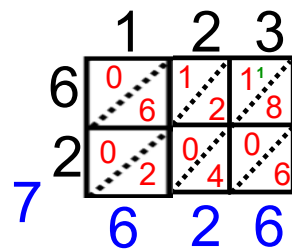
$$\begin{array}{r} 53 \\ \times 8 \\ \hline \end{array}$$



$$\begin{array}{r} 246 \\ \times 35 \\ \hline \end{array}$$



$$\begin{array}{r} 123 \\ \times 62 \\ \hline \end{array}$$





$$2) \quad 159$$

$$\times 442$$

$$\begin{array}{r} \hline 318 \\ 6360 \\ 63600 \\ \hline 70278 \end{array}$$

	100	50	9
400	40 000	20 000	3 600
40	4 000	2 000	360
2	200	100	18

$$\begin{array}{r} 11 \\ 40\ 000 \\ +20\ 000 \\ +\ 3\ 600 \\ +\ 4\ 000 \\ +\ 2\ 000 \\ +\ 360 \\ +\ 200 \\ +\ 100 \\ +\ 18 \\ \hline 70\ 278 \end{array}$$

$$537$$

$$\times 149$$

