

What to bring to class:
 Ask students to bring PM
 4A and 5A.

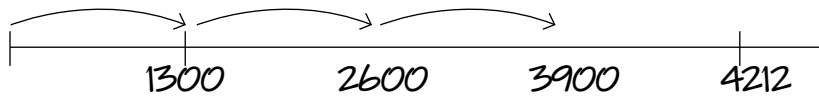
3.6-Multidigit Long Division

Ex 1:
$$\begin{array}{r} 324 \\ 13 \overline{)4212} \\ \underline{39} \\ 31 \\ \underline{26} \\ 52 \\ \underline{52} \\ 0 \end{array}$$

have students do

- ① Interpretations: Partitive-distribute \$42 to 13 people...
 ⇒ \$3 each, \$39 total, \$3 left,...

Repeated Subtraction-



these interpretations still apply, but build from 1-digit division

- ② Facts needed: 13×3
 13×2 ← no point making a table
 13×4

EX 2:
$$\begin{array}{r} 82 \\ 19 \overline{)1558} \\ \underline{-152} \\ 38 \\ \underline{38} \\ 0 \end{array}$$

How many 19's in 155?

Estimate:

$$20 \overline{)160} \quad 8$$

Calculate: $19 \times 8 = 160 - 8 = 152$

Ex 3: $28 \overline{)2076}$

How many 28's in 2076?

Let's relate to 1-digit fact by rounding!

$28 \overline{)2076}$ $30 \overline{)2100}$

round to nearest 10 round in same direction to hundreds

$2100 \div 30 = 210 \div 3 = 70$

$$\begin{array}{r} 74 \text{ R}4 \\ 28 \overline{)2076} \\ \underline{-196} \\ 116 \\ \underline{112} \\ 4 \end{array}$$

$$\begin{array}{r} 5 \\ 28 \\ \times 7 \\ \hline 196 \end{array} \leftarrow \text{total distributed}$$

$$30 \overline{)120}$$

$$\begin{array}{r} 3 \\ 28 \\ \times 4 \\ \hline 112 \end{array}$$

After each distribution do:

Check: is $0 \leq \text{remainder} < \text{divisor}$?

yes- "make change" -ie- shift place value, bring down next digit, repeat.

no- Revise quotient by *try again, or

*add ± 1 copy of divisor

Ex 4:

$$\begin{array}{r}
 7 \\
 26 \overline{) 2095} \\
 \underline{-182} \\
 27
 \end{array}$$

← distribute

← total distributed

$$\begin{array}{r}
 7 \\
 30 \overline{) 2100} \\
 \\
 7 \\
 3 \overline{) 210}
 \end{array}$$

Check: too large!

$$\begin{array}{r}
 4 \\
 26 \\
 \times 7 \\
 \hline
 182
 \end{array}$$

$$\begin{array}{r}
 8 \\
 70 \\
 26 \overline{) 2095} \\
 \underline{182} \\
 27 \\
 \underline{26} \\
 15
 \end{array}$$

← common mistake - forgetting the "0".

← check; okay!

Answer 80 R15

Ex 5: (Individual, 2 mins)

$$\begin{array}{r}
 85 \\
 77 \overline{) 6568} \\
 \underline{616} \\
 408 \\
 \underline{385} \\
 23
 \end{array}$$

← check

$$\begin{array}{r}
 8 \\
 80 \overline{) 6600}
 \end{array}$$

$$\begin{array}{r}
 5 \\
 77 \\
 \times 8 \\
 \hline
 616
 \end{array}$$

Ans: 85 R23

$$\begin{array}{r}
 3 \\
 77 \\
 \times 5 \\
 \hline
 385
 \end{array}$$

Long division is self-correcting - can always subtract a bit more:

Ex 6:

$$\begin{array}{r} 4 \\ 33 \\ 26 \overline{)1138} \\ \underline{-78} \\ 35 \leftarrow \text{check - too big!} \\ \underline{26} \\ 98 \\ \underline{78} \\ 20 \end{array}$$

Ans. 43 R20

Ex 7: (individual 1 min) Finish

$$\begin{array}{r} 5 \\ 43 \overline{)2594} \\ \underline{-215} \end{array}$$

HW Do Problem Set 15, Bring textbook & PM 6A