

Ch. 5 Repeated Subtraction

10/17/23

$$20 \div 5 = 4$$

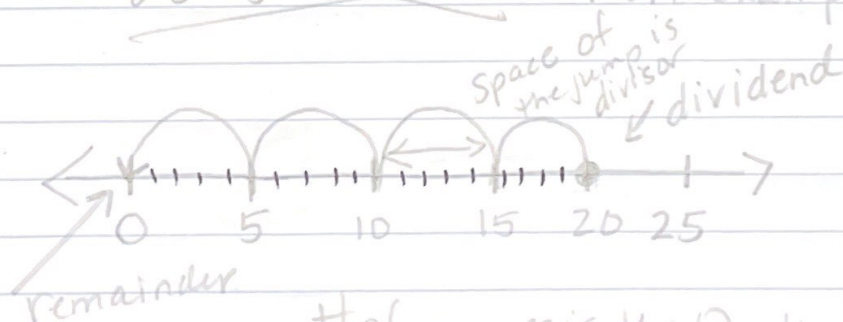
$$\begin{array}{r}
 20 \\
 \textcircled{- 5} \\
 15 \\
 \textcircled{- 5} \\
 10 \\
 \textcircled{- 5} \\
 5 \\
 \textcircled{- 5} \\
 \hline
 0
 \end{array}$$

4 times

← remainder

$$20 - 5 - 5 - 5 - 5 = 0 \checkmark$$

$$\cancel{20 - 5 - 5 - 5 = 5} \text{ non example}$$



of jumps is the Quotient

46

$$28 \div 9 = \underline{3 \text{ r. } 1}$$

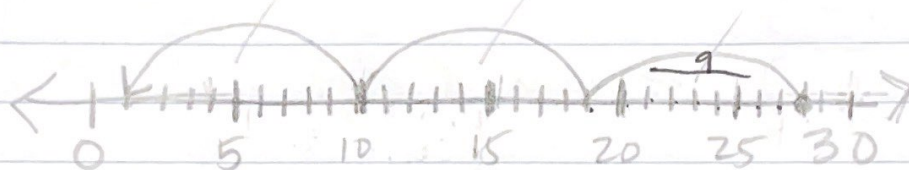
$$\begin{array}{r} 28 \\ - 9 \\ \hline 19 \end{array}$$

$$\begin{array}{r} 19 \\ - 9 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 10 \\ - 9 \\ \hline 1 \end{array}$$

1 ← remainder

$$28 - 9 - 9 - 9 = 1$$



$$R.1 \quad 28 \div 9 = \underline{3 \text{ r. } 1}$$

Ch.5 Partial Quotients

10/18/23

$$13 \div 2 = \underline{6 \text{ r. } 1}$$

$ \begin{array}{r} 2 \overline{) 13} \\ \underline{- 10} \\ 3 \\ \underline{- 2} \\ \text{R. } 1 \end{array} $	$ \begin{array}{ c c } \hline 5 & \times 2 \\ \hline 1 & \times 2 \\ \hline 6 & \\ \hline \end{array} $	← partial quotients ← divisor ← quotient
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$$87 \div 6 = \underline{14 \text{ r. } 3}$$

$ \begin{array}{r} 6 \overline{) 87} \\ \underline{- 60} \\ 27 \\ \underline{- 24} \\ \text{R. } 3 \end{array} $	$ \begin{array}{ c c } \hline 10 & \times 6 \\ \hline 4 & \times 6 \\ \hline 14 & \\ \hline \end{array} $
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48

$$238 \div 6 = 39 \text{ r. } 4$$

$\begin{array}{r} 6 \overline{) 238} \\ \underline{-180} \\ 58 \\ \underline{-54} \\ \text{R. } 4 \end{array}$	$\begin{array}{ c } \hline 30 \\ \hline 9 \\ \hline \end{array}$	$\begin{array}{l} \leftarrow \text{P.Q.} \\ 30 \times 6 \\ 9 \times 6 \\ \hline 39 \leftarrow Q \end{array}$
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$$\begin{array}{r} \textcircled{5} \\ 39 \\ \times 6 \\ \hline 234 \\ + 4 \\ \hline 238 \checkmark \end{array}$$

$\begin{array}{r} 5 \overline{) 362} \\ \underline{-300} \\ 62 \\ \underline{-60} \\ \text{R. } 2 \end{array}$	$\begin{array}{ c } \hline 60 \\ \hline 12 \\ \hline \end{array}$	$\begin{array}{l} 60 \times 5 \\ 12 \times 5 \\ \hline 72 \end{array}$
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$$\begin{array}{r} \textcircled{1} \\ 72 \\ \times 5 \\ \hline 360 \\ + 2 \\ \hline 362 \end{array}$$

$$8 \overline{) 179} \text{ r. } 6$$

$$\begin{array}{r} 8 \overline{) 179} \\ - 800 \\ \hline \end{array}$$

$$638$$

$$\begin{array}{r} 638 \\ - 80 \\ \hline \end{array}$$

$$558$$

$$\begin{array}{r} 558 \\ - 480 \\ \hline \end{array}$$

$$78$$

$$\begin{array}{r} 78 \\ - 12 \\ \hline \end{array}$$

$$\text{r. } 6$$

$$100 \times 8$$

$$10 \times 8$$

$$60 \times 8$$

$$9 \times 8$$

$$179$$

$$\text{⑥⑦}$$

$$179$$

$$\times 8$$

$$1432$$

$$+ 6$$

$$1438$$

50

10/19/23 Ch. 5 Old school $\div$

D $\div$ $\uparrow$
 M $\times$
 S $-$
 B $\downarrow$

$$\begin{array}{r}
 152 \text{ r. } 1 \\
 3 \overline{) 457} \\
 \underline{-3} \downarrow \\
 15 \\
 \underline{-15} \downarrow \\
 07 \leftarrow \text{mini dividend} \\
 \underline{-6} \\
 \text{R. } 1
 \end{array}$$

$$\begin{array}{r}
 152 \\
 \times 3 \\
 \hline
 456 \\
 + 1 \\
 \hline
 457 \checkmark
 \end{array}$$

$\checkmark$ D $\div$ $\uparrow$
 m $\times$
 S $-$
 B $\downarrow$

$$\begin{array}{r}
 x 41 \text{ r. } 3 \\
 4 \overline{) 167} \\
 \underline{-16} \downarrow \\
 07 \\
 \underline{-4} \\
 3
 \end{array}$$

$$\begin{array}{r}
 41 \\
 \times 4 \\
 \hline
 164 \\
 + 3 \\
 \hline
 167 \checkmark
 \end{array}$$

#mathtitan

$$\begin{array}{r}
 \textcircled{4} \overline{) 308} \text{ r.2} \\
 \underline{-12} \\
 20 \\
 \underline{-20} \\
 0 \\
 \underline{-0} \\
 0 \\
 \underline{-0} \\
 0
 \end{array}$$

$\div$ D $\checkmark$
 $\times$ M $\checkmark$
 $-$ S $\checkmark$
 $\downarrow$ B $\checkmark$

$$\begin{array}{r}
 \textcircled{3} \\
 308 \\
 \times 4 \\
 \hline
 1232 \\
 + 2 \\
 \hline
 1234 \checkmark
 \end{array}$$

$$\begin{array}{r}
 28 \text{ r.2} \\
 3 \overline{) 86} \\
 \underline{-6} \\
 26 \\
 \underline{-24} \\
 2
 \end{array}$$

WRONG WAY

~~$$\begin{array}{r}
 1 \\
 3 \overline{) 86} \\
 \underline{-3} \\
 56
 \end{array}$$~~

10/23/23 Ch. 5 Place the First Digit

$$\begin{array}{r} \times \checkmark \\ 3 \overline{) 17} \end{array}$$

first digit: ones place
 ? digits : 1 digit

$$\begin{array}{r} \times \checkmark \\ 3 \overline{) 28} \end{array}$$

① first digit: ones place
 ② ? digits : 1 digit

$$\begin{array}{r} \times \checkmark \checkmark \\ 4 \overline{) 238} \end{array}$$

① tens place
 ② 2 digits

$$\begin{array}{r} \times \checkmark \\ 5 \overline{) 34728} \end{array}$$

① thousands place
 ② 4 digits

$$\begin{array}{r} \checkmark \\ 4 \overline{) 728} \end{array}$$

① hundreds place
 ② 3 digits

$$\begin{array}{r}
 \times 59 \quad r. 2 \\
 4 \overline{) 238} \\
 \underline{-20} \downarrow \\
 \rightarrow 38 \\
 \underline{-36} \\
 \hline
 2
 \end{array}$$

$D \div \leftarrow$
 $m \times$
 $S -$
 $B \downarrow$

$$\begin{array}{r}
 123 \\
 6 \overline{) 738} \\
 \underline{-6} \downarrow \\
 \rightarrow 13 \\
 \underline{-12} \downarrow \\
 \rightarrow 18 \\
 \underline{-18} \\
 \hline
 0
 \end{array}$$

$$\begin{array}{r}
 00 \\
 123 \\
 \times 6 \\
 \hline
 738 \checkmark
 \end{array}$$

$$\begin{array}{r}
 \times 6945 \quad r. 3 \\
 5 \overline{) 34728} \\
 \underline{-30} \downarrow \\
 \rightarrow 47 \\
 \underline{-45} \downarrow \\
 \rightarrow 22 \\
 \underline{-20} \downarrow \\
 \rightarrow 28 \\
 \underline{-25} \\
 \hline
 3
 \end{array}$$

54

$$24000 \div 8 = 3000$$

$$\begin{array}{r}
 \times 3000 \\
 8 \overline{) 24000} \\
 \underline{-24} \downarrow \\
 00 \downarrow \\
 \underline{-0} \downarrow \\
 00 \downarrow \\
 \underline{-0} \downarrow \\
 00 \\
 \underline{-0} \\
 0
 \end{array}$$

$$\begin{array}{r}
 \times 308 \text{ r.6} \\
 8 \overline{) 2470} \\
 \underline{-24} \downarrow \\
 07 \downarrow \\
 \underline{-0} \downarrow \\
 70 \downarrow \\
 \underline{-64} \\
 6
 \end{array}$$

D ÷ ←
mx
S -
B ↓

$$\begin{array}{r}
 \times 2008 \text{ r.6} \\
 7 \overline{) 14062} \\
 \underline{-14} \downarrow \\
 00 \downarrow \\
 \underline{-0} \downarrow \\
 06 \downarrow \\
 \underline{-0} \downarrow \\
 62 \downarrow \\
 \underline{-56} \\
 6
 \end{array}$$

$$\begin{array}{r}
 \textcircled{5} 2008 \leftarrow \\
 \times 7 \\
 \hline
 14056 \\
 + 6 \\
 \hline
 14062 \checkmark
 \end{array}$$

Ch. 5 Remainders as Fractions 10/24/23

$$\begin{array}{r}
 \textcircled{4} \overline{) 39} \\
 \underline{-36} \\
 3
 \end{array}
 \quad
 \begin{array}{r}
 9 \overline{) 3} \\
 \underline{-0} \\
 3
 \end{array}
 \quad
 \begin{array}{r}
 39 \\
 \underline{-36} \\
 3
 \end{array}$$

Diagram showing the conversion of the remainder 3 from the first division to the fraction $\frac{3}{4}$ by dividing it by the divisor 4.

remainder as fraction $\rightarrow \frac{\text{remainder}}{\text{divisor}}$

$$\begin{array}{r}
 0 \frac{2}{3} \\
 3 \overline{) 2} \\
 \underline{-0} \\
 2
 \end{array}$$

$$\begin{array}{r}
 \times 5 \frac{4}{6} \\
 6 \overline{) 34} \\
 \underline{-30} \\
 4
 \end{array}$$

~~$$\begin{array}{r}
 5 \frac{4}{6} \\
 6 \overline{) 34} \\
 \underline{-30} \\
 4
 \end{array}$$~~

$$\begin{array}{r}
 \times 68 \frac{2}{5} \\
 5 \overline{) 342} \\
 \underline{-30} \\
 42 \\
 \underline{-40} \\
 2
 \end{array}$$

$$\begin{array}{r}
 5 \frac{4}{6} \\
 \boxed{\frac{34}{6} = 5 \frac{4}{6}}
 \end{array}$$

$$68 \text{ r. } 2 = \textcircled{68 \frac{2}{5}} \neq \textcircled{68 \text{ r. } \frac{2}{5}}$$

56

$$\times 595 \frac{1}{3}$$

$$\begin{array}{r} 3 \overline{) 1786} \\ \underline{-15} \downarrow \\ \rightarrow 28 \\ \underline{-27} \downarrow \\ \rightarrow 16 \\ \underline{-15} \\ 1 \end{array}$$

$$\times 58 \frac{1}{3}$$

$$\begin{array}{r} 3 \overline{) 175} \\ \underline{-15} \downarrow \\ \rightarrow 25 \\ \underline{-24} \\ 1 \end{array}$$

$$40 \frac{1}{2}$$

$$\begin{array}{r} 2 \overline{) 81} \\ \underline{-8} \downarrow \\ \rightarrow 01 \\ \underline{-0} \\ 1 \end{array}$$

$$\times 2609 \frac{3}{9}$$

$$\begin{array}{r} 9 \overline{) 234867} \\ \underline{-18} \downarrow \\ \rightarrow 54 \\ \underline{-54} \downarrow \\ \rightarrow 08 \\ \underline{-0} \downarrow \\ \rightarrow 86 \\ \underline{-81} \downarrow \\ \rightarrow 57 \\ \underline{-54} \\ 3 \end{array}$$

Ch.5 Interpret the Remainder 10/25/23

Quotient
onlyQuotient + 1Use only
remainderMake
remainder
a fraction

Interpret the Remainder

IGNORE the Remainder

How many are full?

The problem does not make use of the remainder, so it can be ignored.Ex: $14 \div 3 = 4 \text{ r.}2$, but your answer would be 4ADD 1 to the whole number quotientCan't leave anyone behind.
How many containers to
ship ALL?In order to take care of all parts of the problem, one must be added to the whole number quotient.Ex: $14 \div 3 = 4 \text{ r.}2$, but your answer would be 5The Remainder IS the answerWhat is left?
How many remain?
How many DON'T go?The question asks what is left after something has been divided.Ex: $14 \div 3 = 4 \text{ r.}2$, but your answer would be 2SHARE the RemainderHow many EQUAL parts?
How to share?
Use ALL of it.Share the remainder so it becomes part of the quotient. This will result in a fraction.Ex: $14 \div 3 = 4 \text{ r.}2$, but your answer would be $4 \frac{2}{3}$

58

10/24/23 Ch. 5 The Biggies ÷

$$\begin{array}{r}
 \times 35\frac{4}{5} \\
 5 \overline{) 179} \\
 \underline{-15} \downarrow \\
 \rightarrow 29 \\
 \underline{-25} \\
 4
 \end{array}$$

$$\begin{array}{r}
 \times 723\frac{2}{4} \\
 4 \overline{) 2894} \\
 \underline{-28} \downarrow \\
 \rightarrow 09 \\
 \underline{-8} \downarrow \\
 \rightarrow 14 \\
 \underline{-12} \\
 2
 \end{array}$$

$$\begin{array}{r}
 35\frac{4}{5} \\
 5 \overline{) 179} \\
 \underline{-100} \quad 20 \times 5 \\
 79 \\
 \underline{-50} \quad 10 \times 5 \\
 29 \\
 \underline{-25} \quad 5 \times 5 \\
 4 \quad 35
 \end{array}$$

$$\begin{array}{r}
 723\frac{2}{4} \\
 4 \overline{) 2894} \\
 \underline{-2800} \quad 700 \times 4 \\
 94 \\
 \underline{-80} \quad 20 \times 4 \\
 14 \\
 \underline{-12} \quad 3 \times 4 \\
 2 \quad 723
 \end{array}$$

$$\begin{array}{r} \overset{5}{\times 5637} \\ \hline \end{array}$$

$$\begin{array}{r} 2 \overline{) 3946} \\ \underline{-35} \downarrow \\ \rightarrow 44 \\ \underline{-42} \downarrow \\ \rightarrow 26 \\ \underline{-21} \downarrow \\ \rightarrow 5 \end{array}$$

$$\begin{array}{r} \overset{5}{\times 21808} \\ \hline \end{array}$$

$$\begin{array}{r} 8 \overline{) 17285} \\ \underline{-16} \downarrow \\ \rightarrow 12 \\ \underline{-8} \downarrow \\ \rightarrow 48 \\ \underline{-48} \downarrow \\ \rightarrow 05 \\ \underline{-0} \downarrow \\ \rightarrow 5 \end{array}$$

$$\begin{array}{r} \overset{1}{\times 201} \\ \hline \end{array}$$

$$\begin{array}{r} 3 \overline{) 693} \\ \underline{-6} \downarrow \\ \rightarrow 00 \\ \underline{-0} \downarrow \\ \rightarrow 03 \\ \underline{-3} \downarrow \\ \rightarrow 0 \end{array}$$

$$\begin{array}{r} \overset{8}{\times 3168} \\ \hline \end{array}$$

$$\begin{array}{r} 6 \overline{) 19008} \\ \underline{-18} \downarrow \\ \rightarrow 10 \\ \underline{-6} \downarrow \\ \rightarrow 40 \\ \underline{-36} \downarrow \\ \rightarrow 48 \\ \underline{-48} \downarrow \\ \rightarrow 0 \end{array}$$

60

10/27/23 Ch. 5 Multi-Step ÷

Lucia and her dad will prepare corn for a community picnic. There are 3 bags of 32 ears of corn. Each bag holds 32 ears of corn. When the corn is cooked, they want to divide the corn equally among 8 serving plates. How many ears of corn should they put on each of 8 serving plates?

$$(3 \times 32) \div 8$$

✓

$$8 \overline{) 96}$$

12 ears of
corn