

Lesson 6 - Using Subtraction to Divide

There are two ways that we can complete long division when attempting to solve a question. In this lesson we will learn about the subtraction method!!

139 sled dogs are available for an amateur sled dog race. The dogs will be divided into teams of 6. How many teams of 6 can be made with 139 sled dogs?

60

$$\begin{array}{r}
 23 \\
 6 \overline{) 139} \\
 \underline{- 60} \\
 79 \\
 \underline{- 60} \\
 19 \\
 \underline{- 18} \\
 01
 \end{array}$$

+3
23

Remainder

* Try to use groups of 10

139 ÷ 6 = ?

← What factor of 6 is less than 19 but closest to it
↳ 18

Calculate the following:

a) $168 \div 8$ ^{$\times 10$}
 (80) ←

$$\begin{array}{r}
 21 \\
 8 \overline{) 168} \\
 \underline{- 80} \quad 10 \\
 88 \\
 \underline{- 80} \quad 10 \\
 08 \\
 \underline{- 8} \quad 1 \\
 \hline
 0 \text{ R}
 \end{array}$$

$$\begin{array}{r}
 168 \div 8 = 21 \\
 \hline
 21 \\
 8 \overline{) 168} \\
 \underline{- 160} \quad 20 \\
 8 \\
 \underline{- 8} \quad 1 \\
 0
 \end{array}$$

- ① How many times does my divisor go into the first two digits
- ② the answer should always be represented in the tens place value
- ③ Multiply by your answer.
- ④ Subtract
- ⑤ Repeat

40

b) $214 \div 4 \times 10$
 53

$$\begin{array}{r}
 4 \overline{) 214} \\
 \underline{- 40} \quad 10 \\
 174 \\
 \underline{- 40} \quad 10 \\
 134 \\
 \underline{- 40} \quad 10 \\
 94 \\
 \underline{- 40} \quad 10 \\
 54 \\
 \underline{- 40} \quad 10 \\
 14 \\
 \underline{- 12} \quad 3 \\
 2 \text{ R}
 \end{array}$$

OR

Instead of 1 group
 of 40, we did ~~53~~
 3 groups?

$$\begin{array}{r}
 4 \overline{) 214} \\
 \underline{- 80} \quad 20 \\
 134 \\
 \underline{- 120} \quad 30 \\
 14 \\
 \underline{- 12} \quad 3 \\
 2
 \end{array}$$

c) $678 \div 9$

$$\begin{array}{r} 75 \\ 9 \overline{) 678} \\ \underline{- 90} \quad 10 \\ 588 \\ \underline{- 90} \quad 10 \\ 498 \\ \underline{- 90} \quad 10 \\ 408 \\ \underline{- 90} \quad 10 \\ 318 \\ \underline{- 90} \quad 10 \\ 228 \\ \underline{- 90} \quad 10 \\ 138 \\ \underline{- 90} \quad 10 \\ 48 \\ \underline{- 45} \quad 5 \\ 3 \text{ R} \end{array}$$

$$\begin{array}{r} 75 \\ 9 \overline{) 678} \\ \underline{- 180} \quad 20 \\ 498 \\ \underline{- 360} \quad 40 \\ 138 \\ \underline{- 90} \quad 10 \\ 48 \\ \underline{- 45} \quad 5 \\ 3 \text{ R} \end{array}$$

$$\begin{array}{r} 75 \\ 9 \overline{) 678} \\ \underline{- 630} \quad 70 \\ 48 \\ \underline{- 45} \quad 5 \\ 3 \text{ R} \end{array}$$

~~5~~ 1
5

Alvin was raising money for his four favourite hockey teams. After many car washes, bake sales, and hat days, he had raised \$625. Show how he could share this money with the four teams. How much more money does he need so that each team has the same amount of money?

$$\$ 625 \div 4 = \underline{\hspace{2cm}}$$

40, 80, 120, 160.....

* We can subtract by multiples of 40

$4 \times 10 = 40$

4	4	625	
8	- 40	10	
12	-----	585	
16	- 80	20	
20	-----	505	
24	- 120	30	
28	-----	385	
32	- 160	40	
	-----	225	
	- 200	50	
	-----	25	
	- 24	6	
	-----	1 R	

10
20
30
40
50
6
+

156

He raised \$156 for 1 each of the 4 teams.

Using Multiplication Facts to Divide

Students can also use known multiplication facts to be able to divide. If you follow along with the 4 steps below, division becomes very easy and accurate.

$$\begin{array}{r}
 141 \text{ R.0} \\
 4 \overline{) 564} \\
 \underline{- 4} \\
 16 \\
 \underline{- 16} \\
 04 \\
 \underline{- 4} \\
 0
 \end{array}$$

Divide
 Multiply
 Subtract - Bring Down
 Repeat

↳ until you have no numbers to bring down

$$\begin{array}{r}
 141 \\
 4 \overline{) 564} \\
 \underline{- 4} \\
 16 \\
 \underline{- 16} \\
 04 \\
 \underline{- 4} \\
 0 \text{ R}
 \end{array}$$

$$\begin{array}{r}
 141 \\
 \hline
 4 \overline{) 564} \\
 \underline{-4} \\
 16 \\
 \underline{-16} \\
 04 \\
 \underline{4} \\
 0R
 \end{array}$$

Three members of a family decide to share equally the 209 free local minutes left on their cell-phone plan this month. How many minutes will each family member get?

$$\begin{array}{r}
 069 \\
 3 \overline{) 209} \\
 \underline{- 0} \\
 20 \\
 \underline{- 18} \\
 29 \\
 \underline{- 27} \\
 2R
 \end{array}$$

Your Answer

Each family will get 69 minutes

38

55

70

Calculate the following:

$$a) 168 \div 8 = 21$$

$$\begin{array}{r} 021 \\ \hline 8 \overline{) 168} \\ \underline{-0} \\ 16 \\ \underline{-16} \\ 08 \\ \underline{-8} \\ 0R \end{array}$$

$$\begin{aligned} \text{b) } 214 \div 4 \\ = 53 \end{aligned}$$

$$\begin{array}{r} 053 \\ 4 \overline{) 214} \\ \underline{-0} \\ 21 \\ \underline{-20} \\ 14 \\ \underline{-12} \\ 2R \end{array}$$