

Division of 412 by 896

1/8	2/8	3/8	4/8	5/8	6/8	7/8
1/8 > 1+2	2/8 > 2+4	3/8 > 3+6	4/8 > 5+0	5/8 > 6+2	6/8 > 7+4	7/8 > 8+6

Rules of division by 8

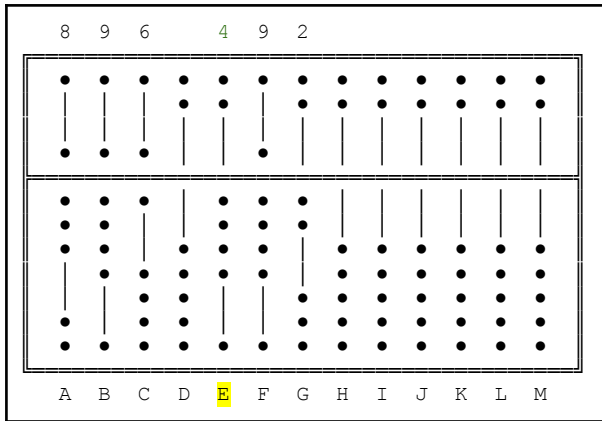
$8/8 > 9+8$

Rule for multi-digit
divisors

<div style="text-align: center; margin-bottom: 5px;"> 8 9 6 4 1 2 </div> <div style="text-align: center; margin-top: 5px;"> A B C D E F G H I J K L M </div>	<p>This time the divisor goes to the left and the dividend to the right</p>
---	---

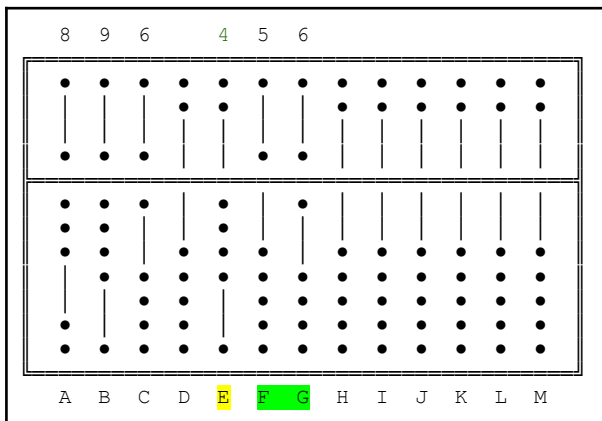
896 412

<div style="text-align: center; margin-bottom: 5px;"> 8 9 6 5 1 2 </div> <div style="text-align: center; margin-top: 5px;"> A B C D E F G H I J K L M </div>	<p>Column E: rule 4/8 > 5+0</p> <p>Change 4 in E into 5, add 0 to F</p>
---	--

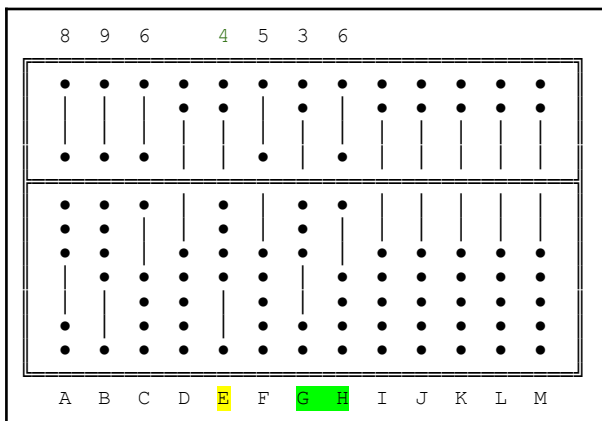


cannot subtract $E \times B = 5 \times 9 = 45$ from FG

revise down E
subtract 1 from E, add 8 to F

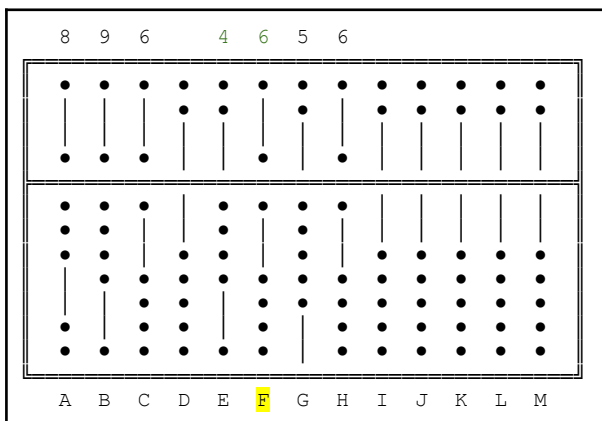


subtract $E \times B = 4 \times 9 = 36$ from FG



subtract $E \times C = 4 \times 6 = 24$ from GH

896 4536



Column F: rule $5/8 > 6+2$

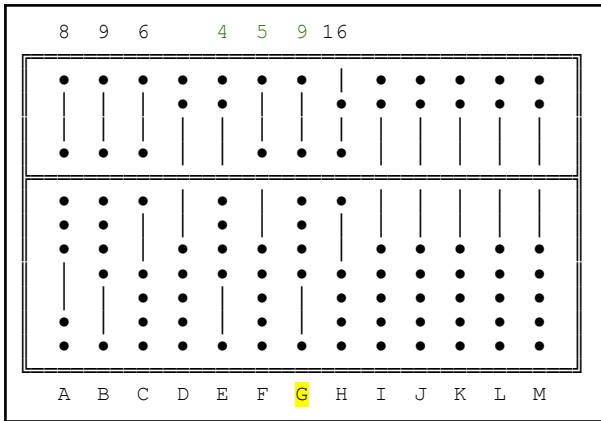
Change 5 in F into 6, add 2 to G

<p style="text-align: center;">8 9 6 4 6 0 2</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <p style="text-align: center;">A B C D E F G H I J K L M</p>	<p>subtract $F \times B = 6 \times 9 = 54$ from GH</p>
---	---

<p style="text-align: center;">8 9 6 4 5 8 2</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <p style="text-align: center;">A B C D E F G H I J K L M</p>	<p>cannot subtract $F \times C = 6 \times 6 = 36$ from HI</p> <p>revise down F subtract 1 from F, add 8 to G</p>
---	---

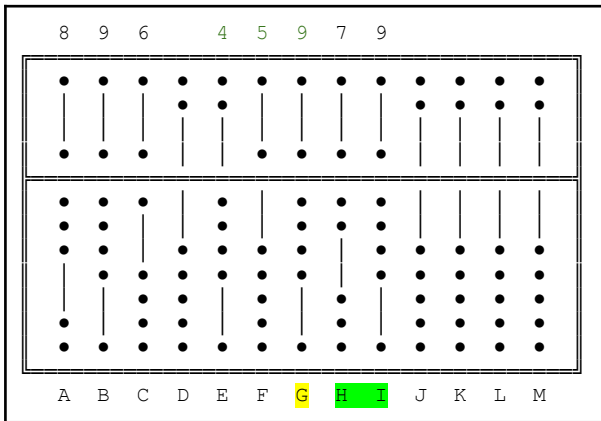
<p style="text-align: center;">8 9 6 4 5 9 1</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <p style="text-align: center;">A B C D E F G H I J K L M</p>	<p>and add 9 to H to return the excess 89 subtracted from GH</p>
---	--

<p style="text-align: center;">8 9 6 4 5 8 8</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> </div> <p style="text-align: center;">A B C D E F G H I J K L M</p>	<p>Continue normally and subtract $F \times C = 3 \times 6 = 30$ from HI</p>
---	---

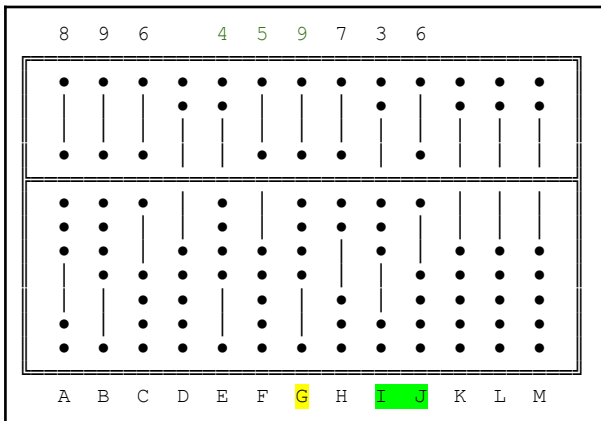


Column G: rule $8/8 > 9+8$

Change 8 in G into 9, add 8 to H

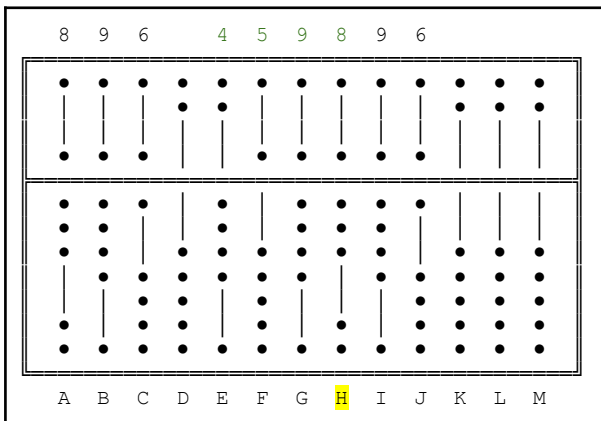


subtract $G \times B = 9 \times 9 = 81$ from HI



subtract $G \times C = 9 \times 6 = 54$ from IJ

896 459736



Column H: rule $7/8 > 8+6$

Change 7 in H into 8, add 6 to I

8 9 6 4 5 9 8 2 4	subtract $H \times B = 8 \times 9 = 72$ from IJ
A B C D E F G H I J K L M	

8 9 6 4 5 9 8 1 9 2	subtract $H \times C = 8 \times 6 = 48$ from JK
A B C D E F G H I J K L M	

896 4598192

8 9 6 4 5 9 8 1 11 2	Column I: rule $1/8 > 1+2$ Change 1 in I into 1, add 2 to J
A B C D E F G H I J K L M	

8 9 6 4 5 9 8 1 10 3	subtract $I \times B = 1 \times 9 = 9$ from JK
A B C D E F G H I J K L M	

<p>8 9 6 4 5 9 8 1 10 2 4</p> <p>A B C D E F G H I J K L M</p>	<p>subtract $I \times C = 1 \times 6 = 6$ from KL</p>
--	--

<p>8 9 6 4 5 9 8 2 1 2 8</p> <p>A B C D E F G H I J K L M</p>	<p>revise up I: add 1 to I, subtract 896 from JKL</p>
---	---

896 45982128

<p>8 9 6 4 5 9 8 2 1 4 8</p> <p>A B C D E F G H I J K L M</p>	<p>Column J: rule $1/8 > 1+2$ Change 1 in J into 1, add 2 to K</p>
---	--

<p>8 9 6 4 5 9 8 2 1 3 9</p> <p>A B C D E F G H I J K L M</p>	<p>subtract $J \times B = 1 \times 9 = 9$ from KL</p>
---	--

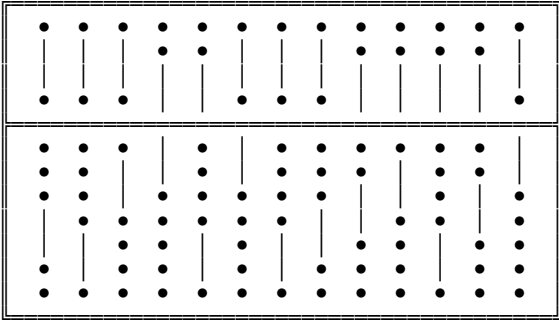
<p>8 9 6 4 5 9 8 2 1 3 8 4</p> <p>A B C D E F G H I J K L M</p>	<p>subtract $J \times C = 1 \times 6 = 6$ from LM</p>
---	--

896 459821384

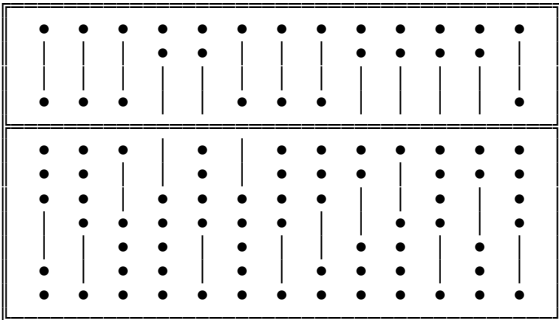
<p>8 9 6 4 5 9 8 2 1 3 14 4</p> <p>A B C D E F G H I J K L M</p>	<p>Column K: rule $3/8 > 3+6$ Change 3 in K into 3, add 6 to L</p>
--	---

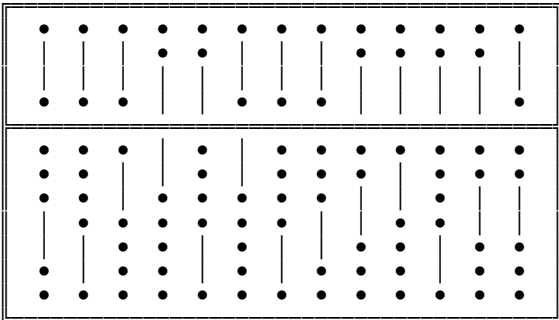
<p>8 9 6 4 5 9 8 2 1 3 11 7</p> <p>A B C D E F G H I J K L M</p>	<p>subtract $K \times B = 3 \times 9 = 27$ from LM</p>
--	---

<p>8 9 6 4 5 9 8 2 1 3 11 5</p> <p>A B C D E F G H I J K L M</p>	<p>subtract $K \times C = 3 \times 6 = 18$ from M... from now it is approximated</p>
--	--

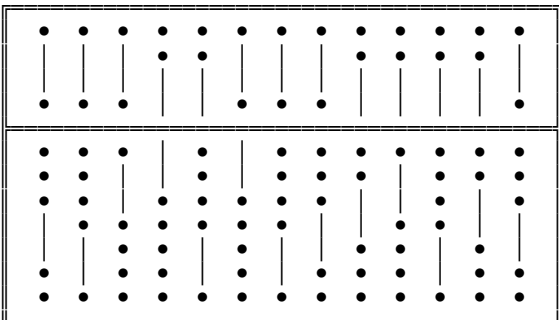
8 9 6 4 5 9 8 2 1 4 2 5  A B C D E F G H I J K L M	revise up K: add 1 to K, subtract 896 from LM...
---	---

896 45982142560

8 9 6 4 5 9 8 2 1 4 2 9  A B C D E F G H I J K L M	Column L: rule $2/8 > 2+4$ Change 2 in L into 2, add 4 to M
--	--

8 9 6 4 5 9 8 2 1 4 2 7  A B C D E F G H I J K L M	subtract $L \times B = 2 \times 9 = 18$ from M..
---	--

896 45982142768

8 9 6 0 4 5 9 8 2 1 4 2 8  A B C D E F G H I J K L M	Column M: rule $7/8 > 8+6$ Change 7 in M into 8, add 4 to ... Done! $412/896 = 0.459821428$
--	--

896 45982142851