Division Hints & Techniques Ms. Liang, Grade 7

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| Solve BOTH equations: | |
| **24** ÷ **6 = \_\_\_\_**  (Look down the **left** side.) | **27** ÷ **6 = \_\_\_\_**  (Look down the **right** side.) |

**Hint #1** Turn it into a multiplication fact.

All division facts can be turned into multiplication facts by rearranging the numbers. Look at it this way:

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| 24 ÷ 6 = \_\_\_\_  6 x \_\_\_\_ = 24 | 27 ÷ 6 = \_\_\_\_  6 x \_\_\_\_ = 27 |

Now that it’s written as a multiplication sentence, you can more easily see that

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| 6 x **4** = 24  Now you know that  24 ÷ 6 =  **4** | If 6 x **4** = 24,  and 6 x **5** = 30,  then 27 can’t be divided *equally* by 6.  There is a remainder! | 6 x **4** = 24  Add **3** to 24 to get 27!  Now you know that  27 ÷ 6 =  **4 R3** |

**Hint #2** Break it down.

If after you’ve turned it into a multiplication fact, you still have difficulty identifying the missing number, try to think of another similar multiplication fact:

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| 6 x **5** = 30  - 6 x **1** = 6  6 x **4** = 24  Change it back to a  division fact:  24 ÷ 6 =  **4** | Using the same “Break it Down” method you see that  6 x **4** = 24  If you were to add **3** to 24, you’d reach 27.  So …  27 ÷ 6 =  **4 R3** |

**Hint #3** Draw an array.

This is a good method for division facts with smaller numbers. First draw 6 circles in a row:

o o o o o o

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| Then, draw a few more rows of 6 underneath, until you have 24 circles in all. You will see that you’ve made **4** equal rows:  o o o o o o  o o o o o o  o o o o o o  o o o o o o | When you draw a few more rows of 6 underneath to get to 27, you will have **4** equal rows, and **3** extra circles:  o o o o o o  o o o o o o  o o o o o o  o o o o o o  o o o ‹-- remainder |

**Hint #4** Add or Subtract.

This can be time-consuming, especially if you’re using higher numbers. It relies on your addition or subtraction skills and keeping track. Worse, if you make one tiny mistake along the way, you will get the wrong answer!

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| Keep adding 6 until you get 24.  How many sixes did you use?  **6** + **6** = 12 + **6** = 18 + **6** = 24  Start with 24. Subtract 6 until you get to zero. How many times did you subtract 6?  24 - **6** = 18 - **6** = 12 - **6** = 6 - **6** = 0 | Keep adding 6 until you get to 27. You’ll see that an extra **3** is needed to reach your goal. Count the sixes. The extra is the remainder.  **6** + **6** = 12 + **6** = 18 + **6** = 24  24 + **3** = 27 **4 R3** |

**Hint #5** Box it up.

This hint may help you with fractions, too. However, much like drawing arrays, this is probably not the best method when dealing with larger numbers, as it is time-consuming.

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| First, draw 6 boxes: | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |

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| Continue placing tallies, one box at a time  until you have 24 tallies in all.  24 ÷ 6 =  **4**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |||| | |||| | |||| | |||| | |||| | |||| | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |||| | |||| | |||| | |||| | |||| | |||| |   Place tallies, one box at a time until you have 27 tallies in all. There will be 3 extra.  |||  27 ÷ 6 =  **4 R3** |