**Division**

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| **Partial Quotients**  **Question:** 550 ÷ 15  **Sample Solutions:**    15**|**550 15**|**550 15**|**550  -150 10 -300 20 -450 30  400 250 100  -150 10 -150 10 -90 6  250 100 10 **36 r 10**  -150 10 -75 5  100 25  -30 2 -15 1  70 10 **36 r 10**  -30 2  40  -30 2  10 **36 r 10** |
| **Multiplying Up**  **Question:** 550 ÷ 15  **Sample Solution:**  15 x 10 = 150 15 x 20 = 300 15 x 30 = 450  15 x 10 = 150 450 15 x 10 = 150 15 x 6 = 90  15 x 10 = 150 15 x 5 = 75 15 x 36 = 540    15 x 2 = 30 480 15 x 1 = 15 **550 ÷ 15 = 36 r 10**  15 x 36 = 540  15 x 2 = 30 510  **550 ÷ 15 = 36 r 10**  15 x 2 = 30 540    15 x 36 = 540 + 10  **550 ÷ 15 = 36 r 10** |

**Multiplication**

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| **Making Landmark or Friendly Numbers**  **Question:** 9 x 29  **Sample Solutions:**  9 x 30 = 270 “that’s one group of 9 too much, so. . .”  270 – 9 = 261  Or  9 x 25 = 225 “because 8 25’s is 200, so 1 more 25 is 225”  9 x 2 = 18  9 x 2 = 18 and 18 + 18 = 36. 225 + 36 = 261 | **Partial Products**  **Question:** 4 x 115  **Sample Solution:**  4 x 115 = 4 x 100 + 4 x 10 + 4 x 5  4 x 100 = 400  4 x 10 = 40  4 x 5 = 20  400 + 40 + 20 = 460  100 10 5  4 4 x 100 = 400 4 x 10=40 4 x 5=20 |
| **Doubling and Halving**  **Question:** 8 x 6  **Sample Solution:** Doubling and Halving can help students relate facts that they are unsure of to facts with which they are fluent.  Cut the 8 x 6 array in half on the dotted line. Move the bottom section to the top right to make a 4 x 12 array. I know that’s 48 because 4 x 10 = 40 and 4 x 2 = 8. 40 + 8 = 48   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | | **Breaking Factors into Smaller Factors**  **Question:** 8 x 25  **Sample Solution:**  8 = 2 x 4  25 x 4 = 100  100 x 2 = 200, so 8 x 25 = 200  **25**  4 x 25 = 100  **4**    **4**  4 x 25 = 100 |