

DMT INSTITUTE

Developing Mathematical Thinking Institute (DMTI)



Professional
Development



Curricular
Resources



Assessment

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Grade 6-8: Multiplication Fluency

DMTI VARIED PRACTICE

DMTI Varied Practice Worksheets

This PowerPoint or PDF displays the worksheets that have varied situations (context, visual, equations, and other mathematical models) for children to work on. By completing these worksheets, children increase their foundational skills in the topic, which will help them with these standards and future mathematical topics.

1. If using a journal, have children present the worksheet and complete all the problems.
2. Or print the 'Varied Practice Worksheet Slides' for them to work on. Then, you can return to the PowerPoint or PDF to look at the keys to check their work.

Grade 6-8: Multiplication Fluency

Materials Needed

Printed copies of the Multiplication Fluency Worksheets

Instructions

You will be given a double digit multiplication expression and will find the product using a compensation strategy. The challenge is to compensate one number to the next larger benchmark number (typically, 5's, 10's,) and then find this product. Then determine the partial product that was compensated and subtract that amount to find the product of the original expression.

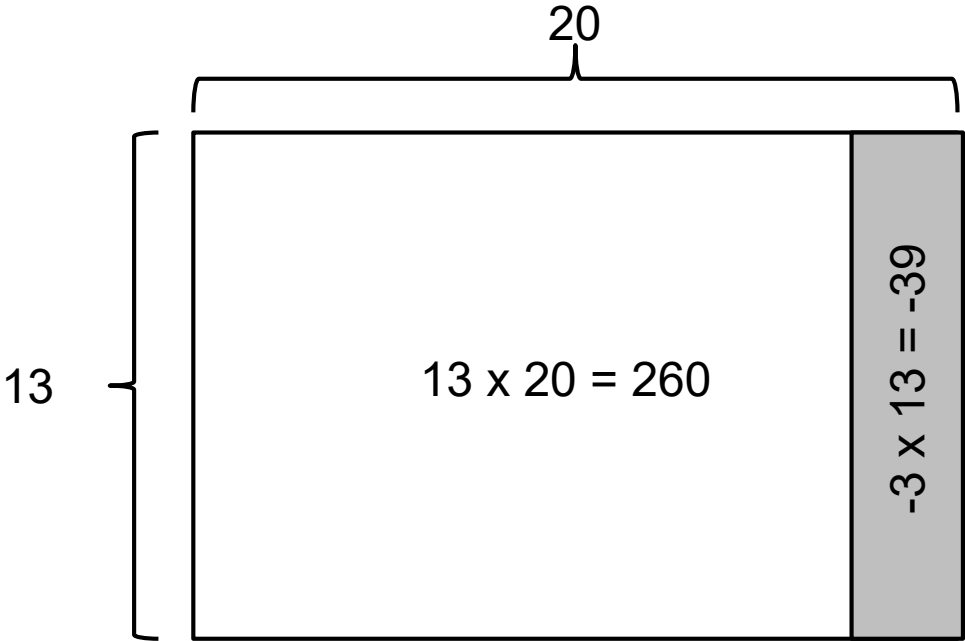
- A. Change one factor to the next larger benchmark number,
- B) Draw an area model to match the compensated product and the amount to subtract,
- C) State the process using a sentence frame.

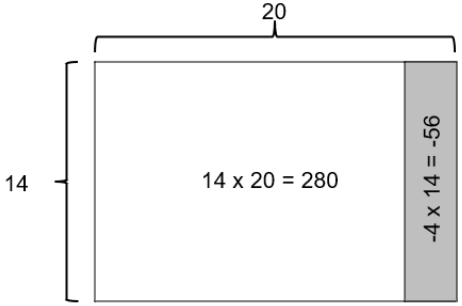
Complete Worksheet 2.1, which gives one of the three steps.

Then cutout the different expressions in Worksheet 2.2 and practice steps B and C out loud (without writing anything down).

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Example:

Expression	Area Model	Sentence Frame
13 x 17	 <p>$260 - 39 = 221$ $13 \times 17 = 221$</p>	<p>I compensated 17 to 20. Then I multiplied 13×20 to get 260.</p> <p>I compensated 3 too many, so I have to subtract out the three 13's too much, which is 39.</p> <p>260 takeaway 39 is 221. So, 13×17 is 221.</p>

Expression	Model	Sentence Frame
18×15 $20 \times 15 = 300$ $-2 \times 15 = -30$ $300 - 30 = 270$ $18 \times 15 = 270$		
		<p>I compensated 19 to 20. Then, I multiplied 20 times 12 to get 240. I compensated one 13 too many, so I have to subtract one 13 too much, which is 13. 240 takeaway 13 is 227. So, 19 x 13 is 227.</p>
	 <p style="text-align: center;"> $14 \times 20 = 280$ $4 \times 14 = -56$ $280 - 56 = 224$ $16 \times 14 = 224$ </p>	

Worksheet 2.2: Practice Cards

$$16 \times 9$$

$$18 \times 16$$

$$14 \times 12$$

$$14 \times 11$$

$$19 \times 18$$

$$19 \times 17$$

$$14 \times 16$$

$$12 \times 18$$

$$19 \times 16$$

$$16 \times 15$$

$$18 \times 14$$

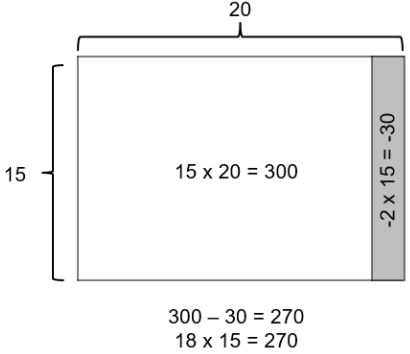
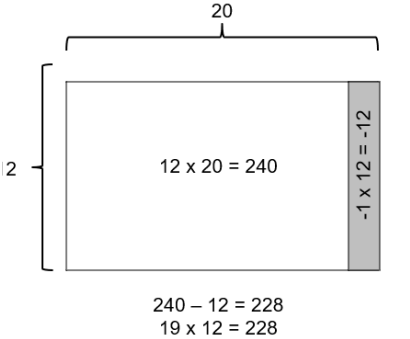
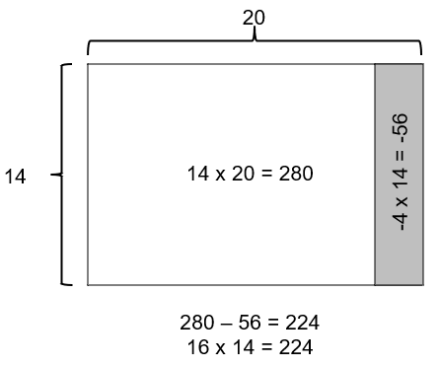
$$19 \times 15$$



“The Developing Mathematical Thinking Institute (DMTI) is dedicated to enhancing students’ learning of mathematics by supporting educators in the implementation of research-based instructional strategies through high-quality professional development, curricular resources and assessments.”

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Expressions	Model	Sentence Frame
18×15 $20 \times 15 = 300$ $-2 \times 15 = -30$ $300 - 30 = 270$ $18 \times 15 = 270$		<p>I compensated 18 to 20. Then, I multiplied 20 times 15 to get 300. I compensated two 15's too many, so I have to subtract one 15 too much, which is 30. 300 takeaway 30 is 270. So, 18×15 is 270.</p>
19×12 $20 \times 12 = 240$ $-1 \times 12 = -12$ $240 - 12 = 228$ $19 \times 12 = 228$		<p>I compensated 19 to 20. Then, I multiplied 20 times 12 to get 240. I compensated one 12 too many, so I have to subtract one 12 too much, which is 12. 240 takeaway 12 is 228. So, 19×12 is 228.</p>
14×16 $14 \times 20 = 280$ $-4 \times 14 = -56$ $280 - 56 = 224$ $14 \times 16 = 224$		<p>I compensated 16 to 20. Then, I multiplied 20 times 14 to get 280. I compensated four 14's too many, so I have to subtract four 14's too much, which is 56. 280 takeaway 56 is 224. So, 14×16 is 224.</p>

<p style="text-align: center;">16×9</p> <p>$16 \times 10 = 160$ $16 \times -1 = -16$ $16 \times 9 = 144$</p>	<p style="text-align: center;">18×16</p> <p>$20 \times 16 = 320$ $-2 \times 16 = -32$ $18 \times 16 = 288$</p>	<p style="text-align: center;">14×12</p> <p>$15 \times 12 = 180$ $-1 \times 12 = 12$ $14 \times 12 = 168$</p>	<p style="text-align: center;">14×11</p> <p>$15 \times 11 = 165$ $-1 \times 11 = -11$ $14 \times 11 = 154$</p>
<p style="text-align: center;">19×18</p> <p>$19 \times 20 = 380$ $19 \times -2 = -38$ $19 \times 18 = 342$</p>	<p style="text-align: center;">19×17</p> <p>$20 \times 17 = 340$ $-1 \times 17 = -17$ $19 \times 17 = 323$</p>	<p style="text-align: center;">14×16</p> <p>$14 \times 20 = 280$ $14 \times -4 = -56$ $14 \times 16 = 224$</p>	<p style="text-align: center;">12×18</p> <p>$12 \times 20 = 240$ $12 \times -2 = -24$ $12 \times 18 = 216$</p>
<p style="text-align: center;">19×16</p> <p>$20 \times 16 = 320$ $-1 \times 16 = -16$ $19 \times 16 = 304$</p>	<p style="text-align: center;">16×15</p> <p>$20 \times 15 = 300$ $-4 \times 15 = -60$ $16 \times 15 = 240$</p>	<p style="text-align: center;">18×14</p> <p>$20 \times 14 = 280$ $-2 \times 14 = 28$ $18 \times 14 = 252$</p>	<p style="text-align: center;">19×15</p> <p>$20 \times 15 = 300$ $-1 \times 15 = -15$ $19 \times 15 = 285$</p>