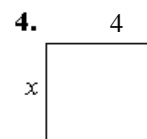
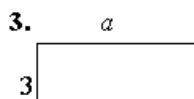
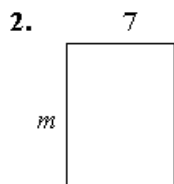
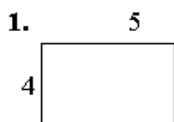
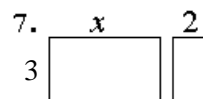
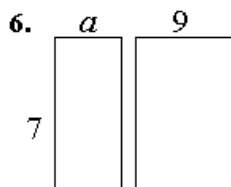
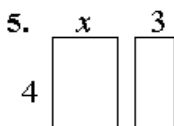


## SE Learning Task: Distributing and Factoring Area

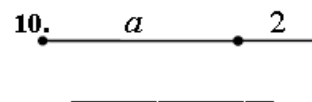
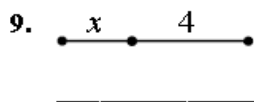
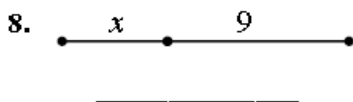
Write the expression that represents the area of each rectangle.



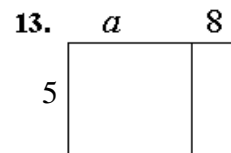
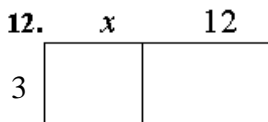
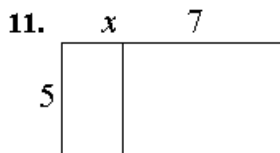
Find the area of each box in the pair.



Write the expression that represents the total length of each segment.



Write the area of each rectangle as the product of **length**  $\times$  **width** and also as a sum of the areas of each box.



AREA AS PRODUCT	AREA AS SUM
$5(x+7)$	$5x+35$

AREA AS PRODUCT	AREA AS SUM

AREA AS PRODUCT	AREA AS SUM

Use the distributive property to find sums that are equivalent to the following expressions. (You may want to use a rectangle to help you)

14.  $4(x + 7) =$  \_\_\_\_\_

15.  $7(x - 3) =$  \_\_\_\_\_

16.  $-2(x + 4) =$  \_\_\_\_\_

17.  $3(x + 9) =$  \_\_\_\_\_

18.  $4(a - 1) =$  \_\_\_\_\_

19.  $3(m + 2) =$  \_\_\_\_\_

20.  $-4(a - 4) =$  \_\_\_\_\_

21.  $\frac{1}{2}(a - 12) =$  \_\_\_\_\_

**Factoring Using Area Models**

Fill in the missing information for each: dimensions, area as product, and area as sum

<p>1.</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>x</math></td> <td style="padding: 5px;"><math>6</math></td> </tr> <tr> <td style="padding: 5px;"><math>2</math></td> <td style="padding: 5px;"><math>2</math></td> </tr> </table> <p>_____</p> <p>_____</p>	$x$	$6$	$2$	$2$	<p>2.</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>5</math></td> <td style="padding: 5px;"><math>5x</math></td> <td style="padding: 5px;"><math>20</math></td> </tr> </table> <p>_____</p> <p>_____</p>	$5$	$5x$	$20$	<p>3.</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>8</math></td> <td style="padding: 5px;"><math>6x</math></td> <td style="padding: 5px;"><math>48</math></td> </tr> </table> <p>_____</p> <p>_____</p>	$8$	$6x$	$48$	<p>4.</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>x</math></td> <td style="padding: 5px;"><math>10x</math></td> <td style="padding: 5px;"><math>30</math></td> </tr> </table> <p>_____</p> <p>_____</p>	$x$	$10x$	$30$
$x$	$6$															
$2$	$2$															
$5$	$5x$	$20$														
$8$	$6x$	$48$														
$x$	$10x$	$30$														

Fill in the missing dimensions from the expression given.

<p>5. <math>5x + 35 = 5(\text{_____})</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>5</math></td> <td style="padding: 5px;"><math>5x</math></td> <td style="padding: 5px;"><math>35</math></td> </tr> </table> <p>_____</p>	$5$	$5x$	$35$	<p>6. <math>2x + 12 = 2(\text{_____})</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>2</math></td> <td style="padding: 5px;"><math>2x</math></td> <td style="padding: 5px;"><math>12</math></td> </tr> </table> <p>_____</p>	$2$	$2x$	$12$	<p>7. <math>3x - 21 = \text{_____}(\text{_____})</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>3</math></td> <td style="padding: 5px;"><math>3x</math></td> <td style="padding: 5px;"><math>-21</math></td> </tr> </table> <p>_____</p>	$3$	$3x$	$-21$
$5$	$5x$	$35$									
$2$	$2x$	$12$									
$3$	$3x$	$-21$									
<p>8. <math>7x - 21 = \text{_____}(\text{_____})</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>7</math></td> <td style="padding: 5px;"><math>7x</math></td> <td style="padding: 5px;"><math>-21</math></td> </tr> </table> <p>_____</p>	$7$	$7x$	$-21$	<p>9. <math>-3x - 15 = -3(\text{_____})</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>-3</math></td> <td style="padding: 5px;"><math>-3x</math></td> <td style="padding: 5px;"><math>-15</math></td> </tr> </table> <p>_____</p>	$-3$	$-3x$	$-15$	<p>10. <math>-5x + 45 = \text{_____}</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>-5</math></td> <td style="padding: 5px;"><math>-5x</math></td> <td style="padding: 5px;"><math>45</math></td> </tr> </table> <p>_____</p>	$-5$	$-5x$	$45$
$7$	$7x$	$-21$									
$-3$	$-3x$	$-15$									
$-5$	$-5x$	$45$									

*Use rectangles to factor the following problems:*

Factor these:

11.  $4x - 16 =$  \_\_\_\_\_

12.  $-7x - 35 =$  \_\_\_\_\_

13.  $9x - 81 =$  \_\_\_\_\_

14.  $4x + 18 =$  \_\_\_\_\_