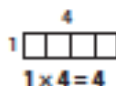

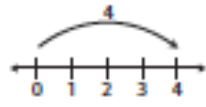
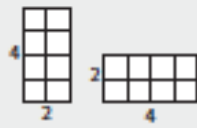

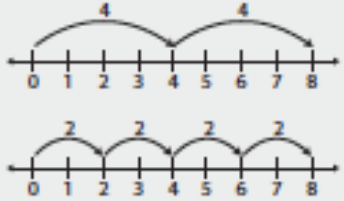
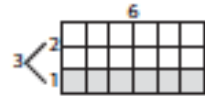

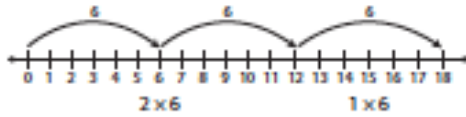


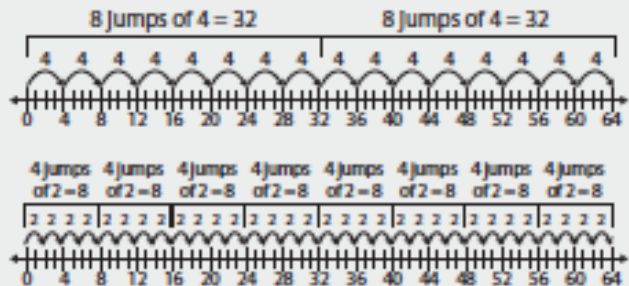
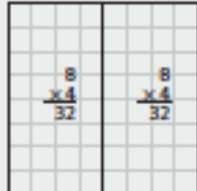
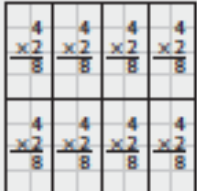


Property	Description	Equation
Zero Property	The product of any number and 0 is 0.	$n \times 0 = 0$
Identity Property	The product of any number and 1 is that number.	$n \times 1 = n$
 <p>$1 \times 4 = 4$</p> <p>The area of an array with dimensions 1 and 4 is 4 square units.</p>	 <p>$1 \times 4 = 4$</p> <p>If you have 1 group of 4, the total is 4.</p>	 <p>$1 \times 4 = 4$</p> <p>If you start at 0 and take 1 jump of 4, you land on 4.</p>
Commutative Property	The order in which numbers are multiplied does not change their product.	$a \times b = b \times a$
 <p>$4 \times 2 = 2 \times 4$</p> <p>The area of a 4-by-2 array is equal to the area of a 2-by-4 array. Regardless of how it is oriented, the array has an area of 8 square units.</p>	 <p>$2 \times 4 = 8$ $4 \times 2 = 8$</p> <p>Two groups of 4 have the same total as 4 groups of 2.</p>	 <p>$2 \times 4 = 8$ $4 \times 2 = 8$</p> <p>If you start at 0 and take 2 jumps of 4, you land on 8. If you take 4 jumps of 2, you also land on 8.</p>
Distributive Property	The product of a sum and any number is equal to the sum of the products of each addend and the number.	$a \times (b + c) = a \times b + a \times c$
 <p>$3 \times 6 = (2 + 1) \times 6 = (2 \times 6) + (1 \times 6)$</p> <p>An array with dimensions 3 and 6 can be broken into two arrays: one with dimensions 2 and 6 and another with dimensions 1 and 6. The total area is equal to the sum of the areas of the two smaller arrays.</p>	 <p>2×6 1×6</p> <p>$3 \times 6 = (2 + 1) \times 6 = (2 \times 6) + (1 \times 6)$</p> <p>The combined total of 2 groups of 6 and 1 group of 6 is equal to the total of 3 groups of 6.</p>	 <p>2×6 1×6</p> <p>$3 \times 6 = (2 + 1) \times 6 = (2 \times 6) + (1 \times 6)$</p> <p>2 jumps of 6 plus 1 jump of 6 is equal to 3 jumps of 6.</p>
Associative Property	The way in which numbers being multiplied are grouped does not change their product.	$(a \times b) \times c = a \times (b \times c)$
 <p>$(8 \times 4) \times 2$</p>  <p>$8 \times (4 \times 2)$</p> <p>$(8 \times 4) \times 2 = 8 \times (4 \times 2)$ Two groups of 8 x 4 is the same as 8 groups of 4 x 2.</p>	 <p>8 jumps of 4 = 32 8 jumps of 4 = 32</p> <p>4 jumps of 2 = 8 4 jumps of 2 = 8</p> <p>$(8 \times 4) \times 2 = 8 \times (4 \times 2)$</p> <p>If you take 8 jumps of 4 two times, you land on 64. If you start at 0 and take 4 jumps of 2 eight times, you also land on 64.</p>	 <p>$(8 \times 4) \times 2 = 32 \times 2 = 64$</p>  <p>$8 \times (4 \times 2) = 8 \times 8 = 64$</p> <p>$(8 \times 4) \times 2 = 8 \times (4 \times 2)$</p> <p>The area of two 8-by-4 arrays is equal to the area of eight 4-by-2 arrays.</p>