

Changing Attributes

original $V = lwh$
 $3(4)(2)$
 $V = 24$

$$SA = 2lw + 2lh + 2wh$$
$$2(3)(4) + 2(3)(2) + 2(4)(2)$$
$$24 + 12 + 16$$
$$SA = 52$$

length
 $\times 2$ $V = lwh$
 $6(4)(2)$
 $V = 48$

$$SA = 2lw + 2lh + 2wh$$
$$2(6)(4) + 2(6)(2) + 2(4)(2)$$
$$48 + 24 + 16$$
$$SA = 88$$

width
 $\times 2$ $V = lwh$
 $3(8)(2)$
 $V = 48$

$$SA = 2lw + 2lh + 2wh$$
$$2(3)(4) + 2(3)(4) + 2(4)(4)$$
$$24 + 24 + 32$$
$$SA = 80$$

Height
 $\times 2$ $V = lwh$
 $3(4)(4)$
 $V = 48$

$$SA = 2lw + 2lh + 2wh$$
$$2(3)(4) + 2(3)(4) + 2(4)(4)$$
$$24 + 24 + 32$$
$$SA = 80$$

Rule Volume \rightarrow when you change one attribute of a rectangular prism, the same change happens to the answer!

Ex. Height $2x \rightarrow$ answer $2x$
width $3x \rightarrow$ answer $3x$

Surface area \rightarrow No pattern.