



## Multiplying Algebraic Expressions

Recall:

Positive x Positive =

Positive x Negative =

Negative x Positive =

Negative x Negative =

## Rewriting Multiplication:



Rewrite each of the following in a simpler form:

a)  $2 \times (x)$

b)  $(3)(x)$

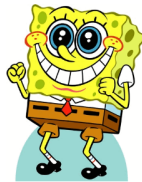
c)  $(-4)(x)$

d)  $(x) \times (10)$

e)  $(x)(5)$

f)  $(x)(-8)$

## Squaring



Rewrite each of the following expressions using exponents:

a)  $5 \times 5 =$

b)  $(3)(3) =$

c)  $6(6) =$

d)  $(4015)(4015) =$

e)  $(-9) \times (-9) =$

f)  $-12(-12) =$

g)  $(x)(x) =$

h)  $(y)(y) =$

i)  $z(z) =$

## Speaking of squaring...

BELIEVE IT OR NOT, HE'S ON A ROLL



Associated Press  
Math professor Stan Wagon demonstrates his square-wheeled bicycle at Macalester College in St. Paul, Minn. In 1960, it was discovered that a square wheel would roll smoothly on a road made of catenaries (those bumpy things). Wagon said he became interested in the concept 7 years ago, did calculations and computer animations, then had the bike specially built.



## A COMMON MISUNDERSTANDING

**Question:** What is the difference between  $2x$  and  $x^2$ ?

Question for Discussion:

**If we multiply four numbers, does the order in which we multiply them matter?**



## Some Examples

**Simplify:**

a)  $(2)(5x)$

b)  $4(3x)$

c)  $(-5)(4x)$

d)  $(-6x)(-2)$

**Try these!**

**Simplify:**

a)  $(x)(x)$

b)  $(3)(x)(x)$

c)  $(x)(3)(x)$

d)  $(4)(x)(5)(x)$

e)  $(2x)(x)$

f)  $(5x)(3x)$

g)  $(-4x)(2x)$

h)  $(-7x)(-2x)$

i)  $(x)(-2x)$



## The Challenger!

**Simplify:**

$$3 + (x)(x) + (2x)(5x) - (2)(4x) - 8 + 7(-2x)$$