Algebra 1

Exponential Properties Involving Products

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Power

Exponent

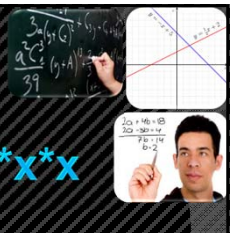
Base

Product of Powers Property

Power of a Power Property

Power of a Product Property

Overview



$x^3 = x*x*x$

exponent

base

$x^2 * x^3 = x*x * x*x*x$

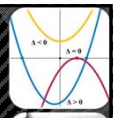
$= x^5 = x^{2+3}$

Product of Powers Property

$a^4 * a^2 = a^{4+2} = a^6$

Exponential Properties Involving Products

1) $x^5 * x^8 =$



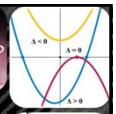
2) True of False:

$z^{125} \equiv z^{75} * z^{50}$

You Try It

1) $x^5 * x^8 \equiv x^{5+8}$

$\equiv x^{13}$



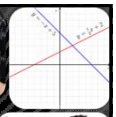
2) True of False:

$z^{125} \equiv z^{75} * z^{50}$

$\equiv z^{100+25} \equiv z^{75+50} \equiv z^{75} * z^{50}$

You Try It

$a^3 = a*a*a$



$(a^3)^2 = (a*a*a)^2$

$= (a*a*a)\,(a*a*a) = a^6$

$(a^3)^2 = a^{3*2} = a^6$

Power of a Power Property

$(x^3)^5 = x^{3*5} = x^{15}$

Exponential Properties Involving Products

Simplify:
$(x^2 * x^3)^3$

You Try It

Simplify:
$(x^2 * x^3)^3$

$= (x^{2+3})^3 \quad = (x^5)^3$

$= x^{5*3} \quad = x^{15}$

PEMDAS

You Try It

$a^3 = aaa$

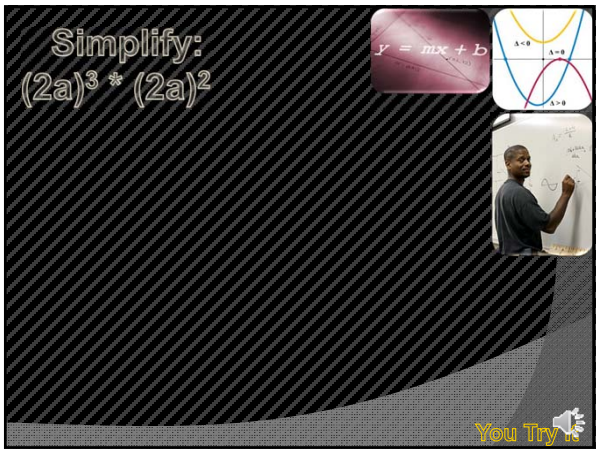
$(ab)^3 = ababab = aaabbb$

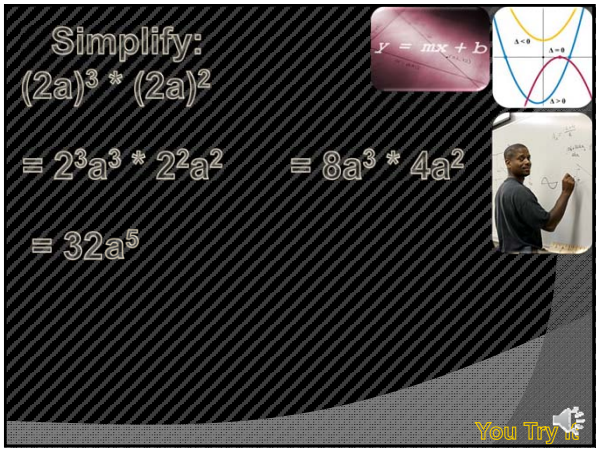
$= a^3b^3$

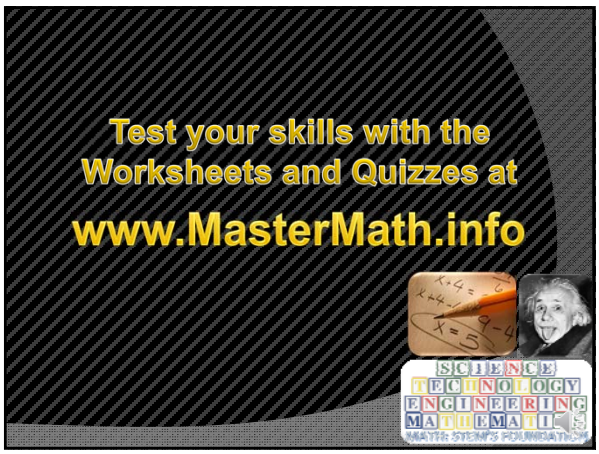
Power of a Product Property

$(xy)^m = x^m y^m$

Exponential Properties Involving Products


Simplify:
$(2a)^3 * (2a)^2$
$y = mx + b$
You Try it


Simplify:
$(2a)^3 * (2a)^2$
$y = mx + b$
$= 2^3a^3 * 2^2a^2$
$= 8a^3 * 4a^2$
$= 32a^5$
You Try it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