

The slide features a light beige background with a blue grid pattern in the top-left and bottom-right corners. A dark blue rectangular area is positioned on the left side, containing the text. A vertical red bar is located on the far left edge of the slide.

# Algebra 1

Chapter 7  
Section 7-3

# Powers of Powers

$$(x^4)^2 = x^4 \cdot x^4 = x^{4+4} = x^8$$

*When a power is taken to another power, you multiply the exponents.*

$$(a^5)^6 = a^{30}$$

$$(k^3)^{-2} = k^{-6} = \frac{1}{k^6}$$

## More Powers of Powers

$$(y^3)^2 = y^6$$

$$(x^{44})^2 = x^{88}$$

$$(a^8)^{\frac{3}{4}} = a^6$$

$$(n^{-7})^{-9} = n^{63}$$

## Powers of Powers Multiplied

$$x^3(x^7)^5 = x^{38}$$

$$(s^{18})^{-1}(s^{-7})^{-3} = s^3$$

$$(b^3)^{\frac{5}{7}}(b^{\frac{-1}{7}}) = b^2$$

$$(n^{10})^{-2}(n^2)^8 = \frac{1}{n^4}$$

$$x^3(x^7)^5 = x^3(x^{35}) = x^{3+35} = x^{38}$$

$$(s^{18})^{-1}(s^{-7})^{-3} = s^{-18}(s^{21}) = s^3$$

$$(b^3)^{5/7}(b^{-1/7}) = b^{15/7}(b^{-1/7}) = b^{14/7} = b^2$$

# Powers of Products

$$(2x^7)^3 = 8x^{21}$$

$$(3f^{-8})^{-1}(3g)^4 = 27f^8g^4$$

$$(25h)^{\frac{3}{2}}(h)^{\frac{-1}{2}} = 125h$$

$$(3kn^9)^{-4}(2kn^6)^5 = \frac{32k}{81n^6}$$

$$x^3(x^7)^5 = x^3(x^{35}) = x^{3+35} = x^{38}$$

$$(s^{18})^{-1}(s^{-7})^{-3} = s^{-18}(s^{21}) = s^3$$

$$(b^3)^{5/7}(b^{-1/7}) = b^{15/7}(b^{-1/7}) = b^{14/7} = b^2$$

# Scientific Notation

$$(2 \times 10^7)^3 = (8 \times 10^{21})$$

$$x^3(x^7)^5 = x^3(x^{35}) = x^{3+35} = x^{38}$$

$$(s^{18})^{-1}(s^{-7})^{-3} = s^{-18}(s^{21}) = s^3$$

$$(b^3)^{5/7}(b^{-1/7}) = b^{15/7}(b^{-1/7}) = b^{14/7} = b^2$$