



WOULD YOU RATHER...

Put \$3 in the bank and
have it triple each week
for 4 weeks?

OR

Put \$4 in the bank and
have it quadruple each
week for 3 weeks?

$$3 \times 3 \times 3 \times 3 \times 3 = 3^5 = 243$$

$$4 \times 4 \times 4 \times 4 = 4^4 = 256$$

1: Complete the table below.

Product of Powers	Repeated Multiplication	Power Form
$10^2 \times 10^3$	$(10 \times 10) \times (10 \times 10 \times 10)$	10^5
$10^3 \times 10^4$	$(10 \cdot 10 \cdot 10)(10 \cdot 10 \cdot 10 \cdot 10)$	10^7
$5^4 \times 5^5$		5^9
$2^3 \times 2^1$		2^4
$3^2 \times 3^5$.	3^7
$4^3 \times 4^2$		4^5

pattern: When you multiply exponents with the same base you just add the exponents

$$4^3 \cdot 4^6 = 4^9$$

$3^8 + 3^2 =$ can't use the rule because not multiplying

$$5^2 \cdot 5^9 = 5^{11}$$

$7^2 \cdot 6^3 =$ can't use the rule because not the same base

$$7^5 \cdot 7^{-5} = 7^0 = 1$$

$$(-3)^2 \cdot (-3)^{-4} = (-3)^{-2}$$

$$4^{3+4} = 4^7$$
$$4^{3+4} = 4^3 \cdot 4^4$$

$$8^4 \cdot 8^3 \cdot 8 = 8^8$$

Quotients of Powers Investigation

1: Complete the table below.

Quotient of Powers	Repeated Multiplication	Power Form
$10^5 \div 10^3$	$\frac{\cancel{10 \times 10 \times 10 \times 10 \times 10}}{\cancel{10 \times 10 \times 10}}$	10^2
$10^8 \div 10^5$		10^3
$5^{10} \div 5^4$		5^6
$9^8 \div 9^3$		9^5
$7^5 \div 7^4$	$\frac{\cancel{7 \times 7 \times 7 \times 7 \times 7}}{\cancel{7 \times 7 \times 7 \times 7}}$	7
$4^7 \div 4^4$		4^3

Rule: when you divide exponents
with the same base you
just subtract the exponents

$$\frac{2^8}{2^6} = 2^2$$

BEDMAS
① ② ③ ④

$$3^4 \div 3^4 = 3^0 = 1$$

$$12^6 \div 12 = 12^5$$

$$(1.4)^6 \div (1.4)^3 = (1.4)^3$$

$$8^{12} \times 8^7 \div 8^2 = 8^{19} \div 8^2 = 8^{17}$$