NAME _____

Lesson 9.2 Negative Exponents

A **negative exponent** may be written with the base as the denominator in a fraction where the numerator is 1. The exponent then becomes positive.

5^{-3} means $\frac{1}{5^3} = \frac{1}{125} = 0.008$ $\quad 10^{-2}$ means $\frac{1}{10^2} = \frac{1}{100} = 0.01$

It is possible to multiply and divide numbers with positive and negative exponents that have the same base.

$5^{-3} \times 5^{-2} = 5^{-3+(-2)} = 5^{-5}$ $\quad 4^{-3} \div 4^{-2} = 4^{-3-(-2)} = 4^{-3+2} = 4^{-1}$

$6^{-4} \times 6^{2} = 6^{-4+2} = 6^{-2}$ $\quad 8^{4} \div 8^{-3} = 8^{4-(-3)} = 8^{4+3} = 8^{7}$

Rewrite each multiplication or division expression using a base and an exponent.

	a	b
1.	$3^{-4} \times 3^{-6} =$ _____	$9^{-3} \div 9^{-5} =$ _____
2.	$4^{3} \div 4^{-2} =$ _____	$5^{5} \times 5^{-6} =$ _____
3.	$12^{-3} \times 12^{-4} =$ _____	$4^{-6} \times 4^{4} =$ _____
4.	$7^{6} \div 7^{-3} =$ _____	$2^{-3} \div 2^{3} =$ _____
5.	$11^{4} \times 11^{-3} =$ _____	$6^{-5} \times 6^{-4} =$ _____
6.	$8^{-5} \div 8^{3} =$ _____	$12^{-4} \div 12 =$ _____
7.	$7^{5} \times 7^{-4} =$ _____	$5^{-3} \times 5^{2} =$ _____
8.	$2^{5} \div 2^{-3} =$ _____	$3^{-12} \times 3^{-4} =$ _____
9.	$6^{3} \div 6^{-4} =$ _____	$7^{-3} \div 7^{4} =$ _____
10.	$9^{-3} \times 9^{4} =$ _____	$10^{-5} \times 10^{-2} =$ _____
11.	$8^{-4} \div 8^{-2} =$ _____	$2^{-2} \times 2^{-12} =$ _____
12.	$3^{-6} \times 3^{-3} =$ _____	$8^{-6} \div 8^{4} =$ _____