

## Study Guide

Student Edition  
Pages 496-500**Multiplying Monomials**

When you multiply monomials, you use the following rules for all numbers  $a$  and  $b$  and any integers  $m$ ,  $n$ , and  $p$ .

	Rule	Example
<b>Product of Powers</b>	For any number $a$ , and all integers $m$ and $n$ , $a^m \cdot a^n = a^{m+n}$ .	$a^2 \cdot a^6 = a^{2+6}$ $= a^8$
<b>Power of a Power</b>	For any number $a$ , and all integers $m$ and $n$ , $(a^m)^n = a^{mn}$ .	$(x^2)^6 = x^{2 \cdot 6}$ $= x^{12}$
<b>Power of a Product</b>	For all numbers $a$ and $b$ , and any integer $m$ , $(ab)^m = a^m b^m$ .	$(pq)^4 = p^4 q^4$
<b>Power of a Monomial</b>	For all numbers $a$ and $b$ , and all integers $m$ , $n$ , and $p$ , $(a^m b^n)^p = a^{mp} b^{np}$ .	$(s^4 t)^3 = (s^4)^3 t^3$ $= s^{4 \cdot 3} t^3$ $= s^{12} t^3$

**Simplify.**

1.  $[n^5(n^2)]$

2.  $b(b^4)$

3.  $(-7x^2)(x^4)$

4.  $(2a^2)(8a)$

5.  $(rs)(rs^3)(s^2)$

6.  $(x^2y)(4xy^3)$

7.  $\frac{1}{3}(2a^3b)(6b^3)$

8.  $(-5nx)(4x^2)(n^4)$

9.  $(n^3)^5$

10.  $(a^4)^6$

11.  $-3(ab^4)^3$

12.  $(-3ab^4)^3$

13.  $(4x^2b)^3$

14.  $(4x)^2(b^3)$

15.  $(-2m^5n^6)^2$

16.  $-2m^5(n^6)^2$

17.  $2(3x)^3$

18.  $-3(2x)^5$

19.  $(-2n^6y^5)(-6n^3y^2)(ny)^3$

20.  $(-3a^3n^4)(-3a^3n)^4$