

**Number
Unit 3 Line Master 9a**
Working on It Answers

Product of Powers	Power of a Power	Power of a Product
1. $5^2 \times 5^3 = 5^5$	1. $(5^3)^2 = 5^6$	1. $(1 \times 4)^4 = 1^4 \times 4^4$
2. $3^4 \cdot 3^2 = 3^6$	2. $(2^3)^4 = 2^{12}$	2. $(2 \times 5)^3 = 2^3 \times 5^3$
3. $(4^2)(4) = 4^3$	3. $(3^4)^6 = 3^{24}$	3. $(5 \times 3)^2 = 5^2 \times 3^2$
4. $8^6 \cdot 8^{15} = 8^{21}$	4. $(1^3)^{13} = 1^{39}$	4. $(3 \times 4)^5 = 3^5 \times 4^5$
5. $(-2)^0 \times (-2)^5 = (-2)^5$	5. $(15^9)^0 = 15^0$	5. $(10^3 \cdot 4^2)^1 = 10^3 \times 4^2$
6. $(-6)^3 \cdot (-6)^2 = (-6)^5$	6. $(2^{-3})^3 = 2^{-9}$	6. $(5^2 \cdot 3^1)^3 = 5^6 \times 3^3$
7. $(-1)^3(-1)^8 = (-1)^{11}$	7. $(1^{-3})^2 = 1^{-6}$	7. $(3^2 \times 2^3)^3 = 3^6 \times 2^9$
8. $5^{-1} \cdot 5^2 = 5^1$	8. $(-4^3)^5 = (-4)^{15}$	8. $(7^2 \times 5^3)^8 = 7^{16} \times 5^{24}$
9. $3^{-2} \cdot 3^4 = 3^2$	9. $(3^{-5})^4 = 3^{-20}$	9. $(2^2 \times 3^5)^0 = 2^0 \times 3^0$
10. $2^{-3} \times 2^{-3} = 2^{-6}$	10. $(2^{-3})^{-1} = 2^3$	10. $((-8)^6 \cdot (-2)^{-3})^4 = (-8)^{24} \times (-2)^{-12}$
11. $4^3 \times 2^{-1} = 2^5$	11. $(3^{-4})^{-3} = 3^{12}$	11. $(3^2 \cdot 3^1)^2 = (3^3)^2 = 3^6$
12. $7^{-3} \times 7^{11} \times 7^2 = 7^{10}$	12. $(2^3)^3(2^9) = 2^{18}$	12. $-(2^2 \times 2^5)^3 = -(2^7)^3 = -(2^{21})$
13. $x^6 \cdot x^5 = x^{11}$	13. $(2^3 \times 2^9)^2 = 2^{24}$	13. $(5^5 \times 5^3)^4 = 5^{32}$
14. $y^{-2} \cdot y^5 = y^3$	14. $(2y^4)^7 = 128y^{28}$	14. $(1^2 \times 1^5)^{10} = 1^{70}$
15. $a^m \cdot a^n = a^{m+n}$	15. $(a^m)^n = a^{mn}$	15. $(3x)^6 = 729x^6$
		16. $(ab)^m = a^m b^m$

Number
Unit 3 Line Master 9b
Working on It Answers (cont'd)

Quotient of Powers	Power of a Quotient
1. $3^4 \div 3^1 = 3^3$	1. $(1 \div 4)^4 = 1^4 \div 4^4$
2. $2^4 \div 2^4 = 2^0$	2. $(2 \div 5)^3 = 2^3 \div 5^3$
3. $\frac{(-6)^3}{(-6)^3} = (-6)^0$	3. $(5 \div 3)^2 = 5^2 \div 3^2$
4. $4^3 \div 4^2 = 4^1$	4. $\left(\frac{3}{4}\right)^5 = \frac{3^5}{4^5}$
5. $10^{12} \div 10^6 = 10^6$	5. $\left(\frac{10}{4}\right)^3 = \frac{10^3}{4^3}$
6. $(-3)^5 \div (-3)^5 = (-3)^0$	6. $(5^2 \div 3^1)^3 = 5^6 \div 3^3$
7. $\frac{(-6)^3}{(-6)^2} = (-6)^1$	7. $(3^2 \div 2^3)^3 = 3^6 \div 2^9$
8. $\frac{(4)^3}{(4^1)} = 4^2$	8. $\left(\frac{1}{3}\right)^2 = \frac{1^2}{3^2}$
9. $(-2)^6 \div (-2)^5 = (-2)^1$	9. $(2^2 \div 3^5)^0 = 2^0 \div 3^0$
10. $(-1)^4 \div (-1)^5 = (-1)^{-1}$	10. $((-8)^1 \div (-2)^1)^4 = (-8)^4 \div (-2)^4$
11. $10^6 \div 10^{12} = 10^{-6}$	11. $(3^2 \div 3^1)^2 = (3^1)^2 = 3^2$
12. $8^3 \div 8 = 8^2$	12. $-(2^5 \div 2^2)^0 = -(2^3)^0 = -2^0$
13. $10^{11} \div 10^6 = 10^5$	13. $(5^5 \div 2^3)^4 = 5^{20} \div 2^{12}$
14. $10^6 \div 10^{11} = 10^{-5}$	14. $(1^2 \div 1^5)^1 = (1^{-3})^1 = 1^{-3}$
15. $a^m \div a^n = a^{m-n}$	15. $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$