

9.2 PRACTICE

Simplify. PRODUCT RULE!

$$1) 10^5 \cdot 10^{10} \quad 10^{15}$$

$$3) 10^4 \cdot 10^8 \quad 10^{12}$$

$$5) 10v^{10} \cdot v^6 \quad 10v^{16}$$

$$7) 3b^7 \cdot 5b^9 \quad 15v^{16}$$

$$9) 4x^8y^3 \cdot 5x^3y^2 \quad 20x^{11}y^5$$

$$2) 5^5 \cdot 5^9 \quad 5^{14}$$

$$4) 6^4 \cdot 6^5 \quad 6^9$$

$$6) 4n^5 \cdot 5n^6 \cdot 7n^4 \quad 140n^{15}$$

$$8) 10x^3 \cdot 4x^4 \quad 40x^7$$

$$10) 9x^8y^3 \cdot x^5y^7 \quad 9x^{13}y^{10}$$

Simplify. POWER RULE!

$$11) (-3)^3 \quad -27$$

$$13) 2^2 \quad 4$$

$$15) (v^9)^7 \quad v^{63}$$

$$17) (2b^2)^5 \quad 2^5 b^{10} = 32b^{10}$$

$$19) (2m^7n^6)^{10} \quad 2^{10} m^{70} n^{60} = 1024m^{70}n^{60}$$

$$12) (4^2)^2 \quad 4^4 = 256$$

$$14) (3^4)^3 \quad 3^{12} = 531441$$

$$16) (x^7)^9 \quad x^{63}$$

$$18) (2n^5)^3 \quad 2^3 n^{15} = 8n^{15}$$

$$20) (x^3y^{10})^2 \quad x^6 y^{20}$$

Simplify. QUOTIENT RULE!

$$21) \frac{9^7}{9^3} = 9^4$$

$$22) \frac{9^{10}}{9^4} = 9^6$$

$$23) \frac{8^6}{8^4} = 8^2$$

$$24) \frac{5^8}{5^6} = 5^2$$

$$25) \frac{2x^{10}}{8x^5} = \frac{1}{4}x^5$$

$$26) \frac{2v^{10}}{2v^5} = v^5$$

$$27) \frac{4a^4}{5a^3} = \frac{4}{5}a$$

$$28) \frac{9m^6}{5m^5} = \frac{9}{5}m$$

$$29) \frac{5ab^5}{4a^4} = \frac{5}{4}a^{-3}b^5$$

$$30) \frac{7x^7y^5}{9y^4} = \frac{7}{9}x^7y$$

Simplify. BRING THE PAIN!

$$31) \frac{2^3 \cdot 2^4}{(2^3)^2} = \frac{2^7}{2^6} = 2^1$$

$$32) \frac{(2^2)^3 \cdot 2^3}{2} = \frac{2^6 \cdot 2^3}{2} = \frac{2^9}{2} = 2^8$$

$$33) \frac{(a^3)^7}{a^8 a^7} = \frac{a^{21}}{a^{15}} = a^6$$

$$34) \frac{(r^9)^9}{2r^7 \cdot 2r^2} = \frac{r^{81}}{4r^9} = \frac{1}{4}r^{72}$$

$$35) \frac{(2x^6y^7)^8}{x^2 \cdot xy^2} = \frac{2^8 x^{48} y^{56}}{x^3 y^2} = 2^8 x^{45} y^{54}$$

$$36) \frac{(2a^9b^5)^8}{a^5b^5 \cdot ab^{10}} = \frac{2^8 a^{72} b^{40}}{a^6 b^{15}} = 2^8 a^{66} b^{25}$$