

Exponent Worksheets

Directions: Simplify each expression using the laws of exponents. Use the least number of bases possible and only positive exponents. When appropriate, express answers without parentheses or as equal to 1. All letters denote numbers.

1.	$11^5 \cdot 11^{-4} =$	
2.	$11^5 \cdot 11^{-3} =$	
3.	$11^5 \cdot 11^{-2} =$	
4.	$7^{-7} \cdot 7^9 =$	
5.	$7^{-8} \cdot 7^9 =$	
6.	$7^{-9} \cdot 7^9 =$	
7.	$(-6)^{-4} \cdot (-6)^{-3} =$	
8.	$(-6)^{-4} \cdot (-6)^{-2} =$	
9.	$(-6)^{-4} \cdot (-6)^{-1} =$	
10.	$(-6)^{-4} \cdot (-6)^0 =$	
11.	$x^0 \cdot x^1 =$	
12.	$x^0 \cdot x^2 =$	
13.	$x^0 \cdot x^3 =$	
14.	$(12^5)^9 =$	
15.	$(12^6)^9 =$	
16.	$(12^7)^9 =$	
17.	$(7^{-3})^{-4} =$	
18.	$(7^{-4})^{-4} =$	
19.	$(7^{-5})^{-4} =$	
20.	$\left(\frac{3}{7}\right)^8 =$	
21.	$\left(\frac{3}{7}\right)^7 =$	
22.	$\left(\frac{3}{7}\right)^6 =$	

23.	$\left(\frac{3}{7}\right)^5 =$	
24.	$(18xy)^5 =$	
25.	$(18xy)^7 =$	
26.	$(18xy)^9 =$	
27.	$(5 \cdot 2^{-2})^3 =$	
28.	$(5 \cdot 2^{-3})^3 =$	
29.	$(5 \cdot 2^{-4})^3 =$	
30.	$(22^6)^0 =$	
31.	$(22^{12})^0 =$	
32.	$(22^{18})^0 =$	
33.	$\left(\frac{4}{5}\right)^{-5} =$	
34.	$\left(\frac{4}{5}\right)^{-6} =$	
35.	$\left(\frac{4}{5}\right)^{-7} =$	
36.	$\left(\frac{6^{-2}}{7^5}\right)^{-11} =$	
37.	$\left(\frac{6^{-2}}{7^5}\right)^{-12} =$	
38.	$\left(\frac{6^{-2}}{7^5}\right)^{-13} =$	
39.	$\left(\frac{6^{-2}}{7^5}\right)^{-15} =$	
40.	$\frac{42ab^{10}}{14a^{-9}b} =$	
41.	$\frac{5xy^7}{25x^7y} =$	
42.	$\frac{22a^{15}b^{32}}{121ab^{-5}} =$	
43.	$(7^{-8} \cdot 49)^{-5} =$	
44.	$(36^9)(216^{-2}) =$	

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Directions: Simplify each expression using the laws of exponents. Use the least number of bases possible and only positive exponents. When appropriate, express answers without parentheses or as equal to 1. All letters denote numbers.

1.	$11^5 \cdot 11^{-4} =$	11^1
2.	$11^5 \cdot 11^{-3} =$	11^2
3.	$11^5 \cdot 11^{-2} =$	11^3
4.	$7^{-7} \cdot 7^9 =$	7^2
5.	$7^{-8} \cdot 7^9 =$	7^1
6.	$7^{-9} \cdot 7^9 =$	1
7.	$(-6)^{-4} \cdot (-6)^{-3} =$	$\frac{1}{(-6)^7}$
8.	$(-6)^{-4} \cdot (-6)^{-2} =$	$\frac{1}{(-6)^6}$
9.	$(-6)^{-4} \cdot (-6)^{-1} =$	$\frac{1}{(-6)^5}$
10.	$(-6)^{-4} \cdot (-6)^0 =$	$\frac{1}{(-6)^4}$
11.	$x^0 \cdot x^1 =$	x^1
12.	$x^0 \cdot x^2 =$	x^2
13.	$x^0 \cdot x^3 =$	x^3
14.	$(12^5)^0 =$	12^{45}
15.	$(12^6)^0 =$	12^{54}
16.	$(12^7)^0 =$	12^{63}
17.	$(7^{-3})^{-4} =$	7^{12}
18.	$(7^{-4})^{-4} =$	7^{16}
19.	$(7^{-5})^{-4} =$	7^{20}
20.	$\left(\frac{3}{7}\right)^8 =$	$\frac{3^8}{7^8}$
21.	$\left(\frac{3}{7}\right)^7 =$	$\frac{3^7}{7^7}$
22.	$\left(\frac{3}{7}\right)^6 =$	$\frac{3^6}{7^6}$

23.	$\left(\frac{3}{7}\right)^5 =$	$\frac{3^5}{7^5}$
24.	$(18xy)^5 =$	$18^5 x^5 y^5$
25.	$(18xy)^7 =$	$18^7 x^7 y^7$
26.	$(18xy)^9 =$	$18^9 x^9 y^9$
27.	$(5.2^{-2})^3 =$	$\frac{1}{(5.2)^6}$
28.	$(5.2^{-3})^3 =$	$\frac{1}{(5.2)^9}$
29.	$(5.2^{-4})^3 =$	$\frac{1}{(5.2)^{12}}$
30.	$(22^6)^0 =$	1
31.	$(22^{12})^0 =$	1
32.	$(22^{18})^0 =$	1
33.	$\left(\frac{4}{5}\right)^{-5} =$	$\frac{5^5}{4^5}$
34.	$\left(\frac{4}{5}\right)^{-6} =$	$\frac{5^6}{4^6}$
35.	$\left(\frac{4}{5}\right)^{-7} =$	$\frac{5^7}{4^7}$
36.	$\left(\frac{6^{-2}}{7^5}\right)^{-11} =$	$6^{22} 7^{55}$
37.	$\left(\frac{6^{-2}}{7^5}\right)^{-12} =$	$6^{24} 7^{60}$
38.	$\left(\frac{6^{-2}}{7^5}\right)^{-13} =$	$6^{26} 7^{65}$
39.	$\left(\frac{6^{-2}}{7^5}\right)^{-15} =$	$6^{30} 7^{75}$
40.	$\frac{42ab^{10}}{14a^{-9}b} =$	$3a^{10}b^9$
41.	$\frac{5xy^7}{25x^7y} =$	$\frac{y^6}{5x^6}$
42.	$\frac{22a^{15}b^{32}}{121ab^{-5}} =$	$\frac{2a^{14}b^{37}}{11}$
43.	$(7^{-8} \cdot 49)^{-5} =$	7^{30}
44.	$(36^9)(216^{-2}) =$	6^{12}