Number Correct: _____

Equivalent Expressions in Exponential Notation – Round 1

Directions: Rewrite each item as an equivalent expression in exponential notation. All letters denote numbers.

1.	$2^2 \cdot 2^3 =$	
2.	$2^2 \cdot 2^4 =$	
3.	$2^2 \cdot 2^5 =$	
4.	$3^7 \cdot 3^1 =$	
5.	$3^8 \cdot 3^1 =$	
6.	$3^9 \cdot 3^1 =$	
7.	$7^6 \cdot 7^2 =$	
8.	$7^6 \cdot 7^3 =$	
9.	$7^6 \cdot 7^4 =$	
10.	$11^{15} \cdot 11 =$	
11.	$11^{16} \cdot 11 =$	
12.	$2^{12} \cdot 2^2 =$	
13.	$2^{12} \cdot 2^4 =$	
14.	$2^{12} \cdot 2^6 =$	
15.	$99^5 \cdot 99^2 =$	
16.	$99^6 \cdot 99^3 =$	
17.	$99^7 \cdot 99^4 =$	
18.	$5^8 \cdot 5^2 =$	
19.	$6^8 \cdot 6^2 =$	
20.	$7^8 \cdot 7^2 =$	
21.	$r^8 \cdot r^2 =$	
22.	$s^8 \cdot s^2 =$	

23.	$6^3 \cdot 6^2 =$	
24.	$6^2 \cdot 6^3 =$	
25.	$(-8)^3 \cdot (-8)^7 =$	
26.	$(-8)^7 \cdot (-8)^3 =$	
27.	$(0.2)^3 \cdot (0.2)^7 =$	
28.	$(0.2)^7 \cdot (0.2)^3 =$	
29.	$(-2)^{12} \cdot (-2)^1 =$	
30.	$(-2.7)^{12} \cdot (-2.7)^1 =$	
31.	$1.1^6 \cdot 1.1^9 =$	
32.	$57^6 \cdot 57^9 =$	
33.	$x^6 \cdot x^9 =$	
34.	$2^7 \cdot 4 =$	
35.	$2^7 \cdot 4^2 =$	
36.	$2^7 \cdot 16 =$	
37.	$16 \cdot 4^3 =$	
38.	$3^2 \cdot 9 =$	
39.	$3^2 \cdot 27 =$	
40.	$3^2 \cdot 81 =$	
41.	$5^4 \cdot 25 =$	
42.	$5^4 \cdot 125 =$	
43.	$8 \cdot 2^9 =$	
44.	$16 \cdot 2^9 =$	

Number Correct: _____
Improvement: _____

Equivalent Expressions in Exponential Notation – Round 2

Directions: Rewrite each item as an equivalent expression in exponential notation. All letters denote numbers.

1.	$5^2 \cdot 5^3 =$	
2.	$5^2 \cdot 5^4 =$	
3.	$5^2 \cdot 5^5 =$	
4.	$2^7 \cdot 2^1 =$	
5.	$2^8 \cdot 2^1 =$	
6.	$2^9 \cdot 2^1 =$	
7.	$3^6 \cdot 3^2 =$	
8.	$3^6 \cdot 3^3 =$	
9.	$3^6 \cdot 3^4 =$	
10.	$7^{15} \cdot 7 =$	
11.	$7^{16} \cdot 7 =$	
12.	$11^{12} \cdot 11^2 =$	
13.	$11^{12} \cdot 11^4 =$	
14.	$11^{12} \cdot 11^6 =$	
15.	$23^5 \cdot 23^2 =$	
16.	$23^6 \cdot 23^3 =$	
17.	$23^7 \cdot 23^4 =$	
18.	$13^7 \cdot 13^3 =$	
19.	$15^7 \cdot 15^3 =$	
20.	$17^7 \cdot 17^3 =$	
21.	$x^7 \cdot x^3 =$	
22.	$y^7 \cdot y^3 =$	

23.	$7^3 \cdot 7^2 =$	
24.	$7^2 \cdot 7^3 =$	
25.	$(-4)^3 \cdot (-4)^{11} =$	
26.	$(-4)^{11} \cdot (-4)^3 =$	
27.	$(0.2)^3 \cdot (0.2)^{11} =$	
28.	$(0.2)^{11} \cdot (0.2)^3 =$	
29.	$(-2)^9 \cdot (-2)^5 =$	
30.	$(-2.7)^5 \cdot (-2.7)^9 =$	
31.	$3.1^6 \cdot 3.1^6 =$	
32.	$57^6 \cdot 57^6 =$	
33.	$z^6 \cdot z^6 =$	
34.	$4 \cdot 2^9 =$	
35.	$4^2 \cdot 2^9 =$	
36.	$16 \cdot 2^9 =$	
37.	$16 \cdot 4^3 =$	
38.	$9 \cdot 3^5 =$	
39.	$3^5 \cdot 9 =$	
40.	$3^5 \cdot 27 =$	
41.	$5^7 \cdot 25 =$	
42.	$5^7 \cdot 125 =$	
43.	$2^{11} \cdot 4 =$	
44.	$2^{11} \cdot 16 =$	

Number Correct: _____

Properties of Integer Exponents to Generate Equivalent Expressions – Round 1

Directions: Simplify each item as much as possible. Answers should have only positive exponents. All letters denote numbers.

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

23.	$\left(\frac{1}{2}\right)^6 =$	
24.	$(3x)^5 =$	
25.	$(3x)^7 =$	
26.	$(3x)^9 =$	
27.	$(8^{-2})^3 =$	
28.	$(8^{-3})^3 =$	
29.	$(8^{-4})^3 =$	
30.	$(22^0)^{50} =$	
31.	$(22^0)^{55} =$	
32.	$(22^0)^{60} =$	
33.	$\left(\frac{1}{11}\right)^{-5} =$	
34.	$\left(\frac{1}{11}\right)^{-6} =$	
35.	$\left(\frac{1}{11}\right)^{-7} =$	
36.	$\frac{56^{-23}}{56^{-34}} =$	
37.	$\frac{87^{-12}}{87^{-34}} =$	
38.	$\frac{23^{-15}}{23^{-17}} =$	
39.	$(-2)^{-12} \cdot (-2)^1 =$	
40.	$\frac{2y}{y^3} =$	
41.	$\frac{5xy^7}{15x^7y} =$	
42.	$\frac{16x^6y^9}{8x^{-5}y^{-11}} =$	
43.	$(2^3 \cdot 4)^{-5} =$	
44.	$(9^{-8})(27^{-2}) =$	

Number Correct: _____

Improvement: _____

Properties of Integer Exponents to Generate Equivalent Expressions – Round 2

Directions: Simplify each item as much as possible. Answers should have only positive exponents. 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.	$(5.2^{-2})^3 =$	
28.	$(5.2^{-3})^3 =$	
29.	$(5.2^{-4})^3 =$	
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.	$(36^9)(216^{-2}) =$	