READY

Topic: Meaning of Exponents

In the table below there is a column for the exponential form, the meaning of that form, which is a list of factors and the standard form of the number. Fill in the form that is missing.

Exponential form	List of factors	Standard Form
5^3	$5 \cdot 5 \cdot 5$	125
1a.	$7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$	b.
2. 2^{10}	a.	b.
3a.	b.	81
4. 11^5	a.	b.
5a.	$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$	b.
6a.	b.	625

Provide at least three other equivalent forms of the exponential expression. Use rules of exponents such as $3^5 \cdot 3^6 = 3^{11}$ and $\left(5^2\right)^3 = 5^6$ as well as division properties and others.

	1st Equivalent Form	Equivalent Form	Equivalent Form
7. $2^{10} =$			
8. $3^7 =$			
9. $13^{-8} =$			
10. $7^{\frac{1}{3}} =$			
11. $5^1 =$			

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SET
Topic: Finding equivalent expressions and functions

Determine whether all three expressions in each problem below are equivalent. Justify why or why they are not equivalent.

12. $5(3^{x-1})$ $15(3^{x-2})$ $\frac{5}{3}(3^x)$

13. $64(2^{-x})$ $\dfrac{64}{2^x}$ $64\left(\frac{1}{2}\right)^x$

14. $3(x-1)+4$ $3x-1$ $3(x-2)+7$

15. $50(2^{x+2})$ $25(2^{2x+1})$ $50(4^x)$

16. $30(1.05^x)$ $30\left(1.05^{\frac{1}{7}}\right)^{7x}$ $30\left(1.05^{\frac{x}{2}}\right)^2$

17. $20(1.1^x)$ $20(1.1^{-1})^{-1x}$ $20\left(1.1^{\frac{1}{5}}\right)^{5x}$

GO
Topic: Using rules of exponents

Simplify each expression. Your answer should still be in exponential form.

18. $7^3 \cdot 7^5 \cdot 7^2$ 19. $(3^4)^5$ 20. $(5^3)^4 \cdot 5^7$

21. $x^3 \cdot x^5$ 22. x^{-b} 23. $x^a \cdot x^b$

24. $(x^a)^b$ 25. $\dfrac{y^a}{y^b}$ 26. $\dfrac{(y^a)^c}{y^b}$

27. $\dfrac{(3^4)^6}{3^7}$ 28. $\dfrac{r^5 s^3}{r s^2}$ 29. $\dfrac{x^5 y^{12} z^0}{x^8 y^9}$

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