Exponents Stretch

Properties of Exponents				
$a^m a^n = a^{m+n}$	$(a^m)^n = a^{mn}$	$(ab)^m = a^m b^m$	$a^{m^n} = a^{(m^n)}$	$a^{\frac{1}{n}} = \sqrt[n]{a}$
$\frac{a^m}{a^n} = a^{m-n}$ $a \neq 0$	$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$ $b \neq 0$	$a^{-m} = \frac{1}{a^m}$ $a \neq 0$	$a^m = \frac{1}{a^{-m}}$ $a \neq 0$	$a^{\frac{m}{n}} = \sqrt[n]{a^m} = \left(\sqrt[n]{a}\right)^m$

1. _____ What is the value of $256^{\frac{1}{4}}$?

2. _____ When $\frac{(x^2y^3)^3}{x^2y^{-2}}$ is expressed in the form x^ay^b, what is the value of $a + b$?

3. _____ What is the value of 2^{3^2}?

4. _____ What is the value of $\left(2\frac{1}{4}\right)^{\frac{1}{2}} + \left(2\frac{1}{4}\right)^{-\frac{1}{2}}$? Express your answer as a common mixed number.

5. _____ When $\left(\sqrt{w}\right)^3$ is written in the form $w^{\frac{m}{n}}$ for common fraction $\frac{m}{n}$, what is the value of $m - n$?

6. _____ Given that $9^{x-1} = 27$, what is the value of x? Express your answer as a common fraction.

7. _____ What is the value of $\frac{2^{32} - 2^{29}}{2^{31} - 2^{30}}$? Express your answer as a common fraction.

8. _____ Given that $\frac{32^7}{16^6} = 2^d$, what is the value of d?

9. _____ Given that $\left(\sqrt{3}\right)^t = \sqrt[9]{9}$, what is the value of t? Express your answer as a common fraction.

10. _____ What is the sum of the values of x that satisfy the equation $(x-2)^{x^2+7x+12} = 1$?

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