ALGEBRA 2 HONORS
EXPONENTS PRACTICE QUIZ

DUE MARCH 4, END OF CLASS

Question 1. Let $f(x) = 3^x - 4$.

(1) Find the y-intercept
(2) Find two other points on $f(x)$
(3) Find the Horizontal Asymptote of $f(x)$
(4) Graph $f(x)$

Question 2. Let $f(x) = -2 \cdot 3^{-x} + 1$.

(1) Find the y-intercept
(2) Find two other points on $f(x)$
(3) Find the Horizontal Asymptote of $f(x)$
(4) Graph $f(x)$

Question 3. Solve for x in the equation $9^x - 10 \cdot 3^x + 9 = 0$.

Question 4. Write each of the following as a power of 3, e.g. write 5 as 5^1.

(a) 1

(b) 9

(c) $3\sqrt{3}$

(d) $\dfrac{1}{\sqrt[4]{3}}$

(e) 9^{x+3}

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(f) $\dfrac{81}{3^x}$

Question 5. Compute the following:

(a) $81^{-1/2}$

(b) $27^{4/3}$

(c) $8^{2/3}$

(d) $8^{-2/3}$

(e) $9^{3/2}$

Question 6. Simplify using exponent rules:

(a) $x^4y^5 \times x^2y^3$

(b) $6xy^5 \div 9x^2y^5$

(c) $(a^2b^7)^3$

(d) $\dfrac{2^{x+2}}{2^{1-2x}}$

(e) $a^{-2} \times a^{-3}$

(f) $a^{-2} \div a^{-3}$

(g) $\left(\dfrac{2a^{-1}}{b^2}\right)^2$

Question 7. Simplify the expressions

(a) $(81x^4)^{-1/4}$

(b) $\left(\dfrac{x^{1/4}}{y^{-3/4}}\right)^{12}$

(c) $\sqrt{x} \cdot x^{3/4}$

(d) $(2\dfrac{x}{y^2})^3$

(e) If $4^a 2^b = 1$ and $\dfrac{8^a}{4^b} = \dfrac{1}{128}$, find the value of $\dfrac{16^a}{2^b}$.