Algebra II & Trigonometry
Exam Review problems
Chapter 7

Name _____

1. Evaluate the following without a calculator.

(a) 2^3 (b) 2^0 (c) 2^{-1} (d) 2^{-4} (e) 4^{-2}

_____ _____ _____ _____ _____

(f) $4^{\frac{1}{2}}$ (g) $4^{\frac{3}{2}}$ (h) $27^{\frac{1}{3}}$ (i) $27^{2/3}$ (j) $27^{-2/3}$

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_____ _____ _____ _____ _____

(k) $(2\cdot 3)^{-1}$ (l) $2\cdot 3^{-1}$ (m) $\left(\frac{2}{3}\right)^3$ (n) $\left(\frac{2}{3}\right)^{-1}$ (o) $\frac{2}{3}^{-1}$

_____ _____ _____ _____ _____

2. Simplify each expression completely. Your final answer should have no negative exponents!

(a) x^{-4} (b) $x^6 \cdot x^7$ (c) $x^{-3} \cdot x^7$ (d) $x^{-7} \cdot x^3$ (e) $(x^2)^4$

_____ _____ _____ _____ _____

(f) $(x^2)^{-4}$ (g) $(x^{-2})^{-4}$ (h) $\left(x^{100}\right)^0$ (i) $\frac{x^{400}}{x^{300}}$ (j) $\frac{x^{307}}{x^{310}}$

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(k) $\frac{2x^{-3}}{x^2}$ (l) $\frac{3x^{-100}}{9x^{-103}}$ (m) $\frac{2x^4y^{-8}}{8y^{-1}x}$ (n) $\left(2xy^3\right)^2$ (o) $\left(2x^{-1}y^3\right)^2$

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3. Again, simplify each expression completely. Your final answer should have no negative exponents!

(a) $\left(2x^{-1}y^{3}\right)^{-2}$ (b) $\frac{2x}{y^{3}} \cdot \frac{y^{2}}{8x^{4}}$ (c) $\frac{2x}{y^{3}} \div \frac{y^{2}}{8x^{4}}$

_____ _____ _____

4. Simplify each radical/fraction exponent expression

(a) $(9x^{6}y^{12})^{\frac{1}{2}}$ (b) $(9x^{6}y^{12})^{\frac{3}{2}}$ (c) $(9x^{6}y^{-12})^{-\frac{3}{2}}$

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5. Solve each equation for *x*. Be sure to check your answers, and to include a +/- when needed!

(a) $(3x+7)^{\frac{1}{4}} = 2$ (b). $(x+1)^{3} - 20 = 7$ (c) $2x^{4} = 32$

_____ _____ _____

(d) $\sqrt{(2x-1)^{3}} = 8$ (e) $\sqrt{x+5} = x+3$. (f) $(2x+5)^{\frac{2}{3}} = 16$

Remember to foil!

_____ _____ _____

6. Simplify

(a) $\sqrt{9x^6y^{-12}}$

(b) $\sqrt[3]{-64x^6y^{-12}}$

7. Simplify each equation and solve for x.

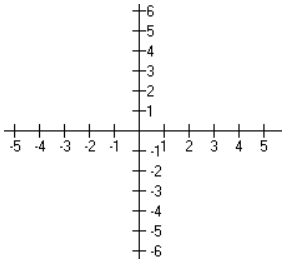
(a) $5^{3x+2} \cdot 5^{10-2x} = 5^{26}$

(b) $\frac{3^{10x}}{3^{2x}} = 9^{16}$

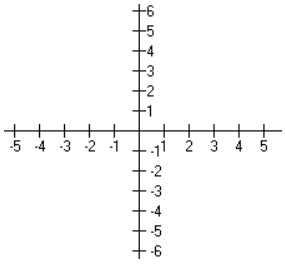
(c) $4^{3x-3} = 16^{x}$

8. Graph each of the following. Label key points and asymptotes.

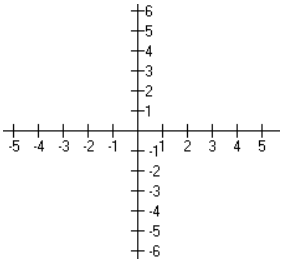
(a) $y = x^{\frac{1}{3}}$



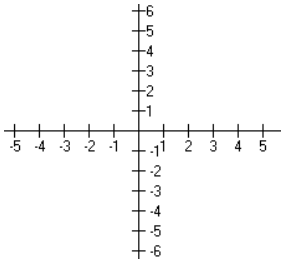
(b) $y = \sqrt[3]{x+2}$



(c) $y = x^{\frac{1}{2}}$



(d) $y = -x^{\frac{1}{2}} + 5$



9. Write an equation for the graph to the right.