Name _____   Date _____
Mr. Schlansky   Algebra II
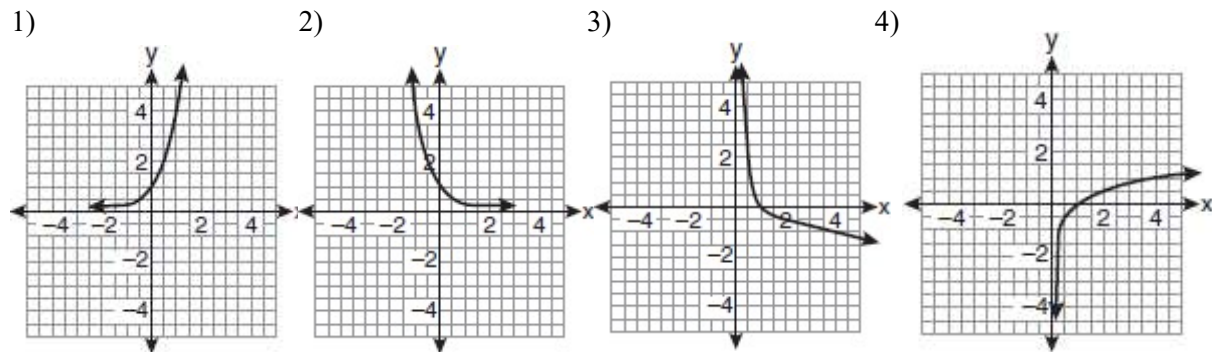
Exponents/Logarithms Review Sheet

1. The expression $\sqrt[4]{81x^2y^5}$ is equivalent to

1) $3x^{\frac{1}{2}}y^{\frac{5}{4}}$

2) $3x^{\frac{1}{2}}y^{\frac{4}{5}}$

3) $9xy^{\frac{5}{2}}$

4) $9xy^{\frac{2}{5}}$

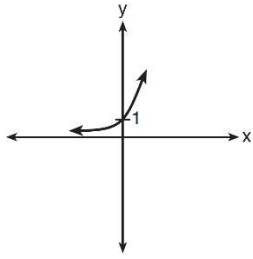2. The expression $\left(\dfrac{m^2}{m^{\frac{1}{3}}}\right)^{-\frac{1}{2}}$ is equivalent to

1) $-\sqrt[6]{m^5}$ 3) $-m\sqrt[5]{m}$

2) $\dfrac{1}{\sqrt[6]{m^5}}$ 4) $\dfrac{1}{m\sqrt[5]{m}}$

3. If a function is defined by the equation $f(x) = \log_4 x$, which graph represents the inverse of this function?

1)   2)   3)   4)

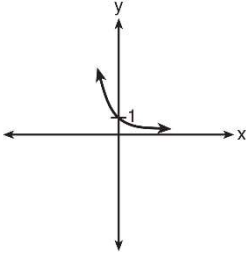4. Which sketch shows the inverse of $y = a^x$, where $a > 1$?

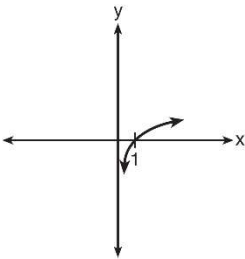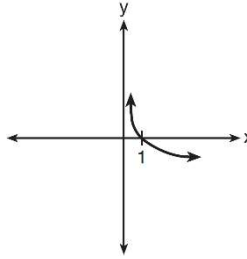1)   2)   3)   4)

5. Which statement about the graph of $c(x) = \log_6 x$ is *false*?
1) The asymptote has equation $y = 0$.
2) The graph has no y-intercept.
3) The domain is the set of positive reals.
4) The range is the set of all real numbers.

6. Which statement about the graph of the equation $y = e^x$ is *not* true?
1) It is asymptotic to the x-axis.
2) The domain is the set of all real numbers.
3) It lies in Quadrants I and II.
4) It passes through the point $(e, 1)$.

7. Express in simplest form:
$$\sqrt[3]{\frac{x^{-6} y^{12}}{27 z^{-9}}}$$

8. Express in simplest form:
$$\sqrt{\frac{64 m^{-2} n^5}{25 z^{-8}}}$$

9. Solve for x: $3x^{\frac{2}{5}} - 11 = 289$

10. Solve for x: $x^{\frac{1}{5}} - 6 = -8$

11. Drew's parents invested \$1,500 in an account such that the value of the investment doubles every seven years. The value of the investment, V, is determined by the equation $V = 1500(2)^{\frac{t}{7}}$, where t represents the number of years since the money was deposited. How many years, to the *nearest tenth of a year*, will it take the value of the investment to reach \$1,000,000?

12. Juliette deposits \$2500 into a bank account where the balance of the account $b(t)$ after t years can be represented by $b(t) = 2500(1.075)^t$. To the nearest tenth of a year:
   a) how long will it take for Juliette's money to reach \$4000?
   b) how long will it take for Juliette's money to double?
   c) how long will it take for Juliette's money to increase by 50%?