Name: _____

1. If the expression $(2y^a)^4$ is equivalent to $16y^8$, what is the value of a?

   1. 12   2. 2

   3. 32   4. 4

2. The expression $\dfrac{12w^9y^3}{-3w^3y^3}$ is equivalent to

   1. $-4w^6$

   2. $-4w^3y$

   3. $9w^6$

   4. $9w^3$

3. Express in simplest form: $\dfrac{45a^4b^3 - 90a^3b}{15a^2b}$

   1. $3a^2b^2 - 6ab$

   2. $3a^2b^2 - 1$

   3. $3a^2b^3 - 6a$

   4. $3a^2b^2 - 6a$

7. Which expression is equivalent to $\dfrac{x^{-1}y^4}{3x^{-5}y^{-1}}$?

   1. $\dfrac{x^4y^5}{3}$

   2. $\dfrac{x^5y^4}{3}$

   3. $3x^4y^5$

   4. $\dfrac{y^4}{3x^5}$

8. Find the quotient of the following expression:

$$\dfrac{\left(2x^3y^4\right)^2}{6x^6y^9}$$

   1. $\dfrac{2}{3y}$

   2. $6y$

   3. $\dfrac{2}{3xy}$

   4. $\dfrac{1}{3y}$

4. The product of $3x^5$ and $2x^4$ is

  1. $5x^9$

  2. $5x^{20}$

  3. $6x^9$

  4. $6x^{20}$

5. Which expression is *not* equal to 1?

  1. $\dfrac{6^5}{6^3 \cdot 6^2}$

  2. $\dfrac{3!}{6}$

  3. 6^0

  4. $\dfrac{6^6}{6^2 \cdot 6^3}$

6. Which expression is equivalent to $(5^{-2}a^3b^{-4})^{-1}$?

  1. $\dfrac{10b^4}{a^3}$

  2. $\dfrac{25b^4}{a^3}$

  3. $\dfrac{a^3}{25b^4}$

  4. $\dfrac{a^2}{125b^5}$

9. Simplify the expression $\dfrac{x^{5/3}y^{3/2}}{x^{2/3}y^{5/2}}$ and leave the answer in terms of positive exponents, only.

  1. $\dfrac{x}{y}$

  2. $\dfrac{y}{x}$

  3. xy

  4. $(xy)^2$

10. Simplify the expression $\left(3x^{-2}y^3\right)^{-2}\left(2x^{-6}y^2\right)$ so that it uses positive exponents, only.

  1. $\dfrac{1}{9x^2y^4}$

  2. $\dfrac{2x^2y^4}{9}$

  3. $\dfrac{2}{9x^2y^4}$

  4. $\dfrac{2y^4}{9x^2}$