61. Simplify $\left(\frac{1}{2x^2}\right)^{-3}$.

    a. $6x^6$

    b. $8x^6$

    c. $\frac{1}{6x^6}$

    d. $\frac{3}{8x^5}$

    e. $\frac{1}{8x^5}$

63. Simplify $36^{\frac{-3}{2}}$.

    a. -6

    b. -216

    c. -12

    d. $\dfrac{1}{216}$

    e. $-\dfrac{1}{216}$

8. The product $(2x^4y)(3x^5y^8)$ is equivalent to:

    F. $5x^9y^9$

    G. $6x^9y^8$

    H. $6x^9y^9$

    J. $5x^{20}y^8$

    K. $6x^{20}y^8$

17. Simplify $-(6x^4y^3)^2$.

a. $-36x^6y^5$

b. $36x^2y$

c. $-36x^8y^6$

d. $36x^8y^4$

e. $-36xy$

4. Which of the following is equivalent to $(4x^2)^3$?

F. $64x^8$

G. $64x^6$

H. $12x^6$

J. $12x^5$

K. $4x^6$

22. For all $a > 1$, the expression $\dfrac{3a^4}{3a^6}$ equals:

F. $\quad \dfrac{1}{2}$

G. $\quad -a^2$

H. $\quad a^2$

J. $\quad -\dfrac{1}{a^2}$

K. $\quad \dfrac{1}{a^2}$

35. $(3x^3)^3$ is equivalent to:

    A. x

    B. $9x^6$

    C. $9x^9$

    D. $27x^6$

    E. $27x^9$

50. If $x = 3^a$ and $y = 3^{-a}$ then what is y in terms of x?

→ F. $y = \dfrac{1}{x}$

G. $y = -\dfrac{1}{x}$

H. $y = \dfrac{3}{x}$

J. $y = -x$

K. $y = x^{-3}$

ACT-53C

Great Logrithm Question

$x = 3^a$

$y = 3^{-a}$

$\log_3 x = a$ and $\log_3 y = -a$ or $-\log_3 y = a$

set the Two Equal to each other

$\log_3 x = -\log_3 y$ or $\log_3 x + \log_3 y = 0$

$\log_3 xy = 0$ becomes $3^0 = xy$ when Converted

$1 = xy$ ∴ $y = \dfrac{1}{x}$

F

29. If a, b, and c are positive integers such that $a^b = x$ and $c^b = y$, then $xy = ?$

A. ac^b

B. ac^{2b}

C. $(ac)^b$

D. $(ac)^{2b}$

E. $(ac)^{b^2}$

8. For all a and b, $3a^2b^3(2a^3b^3) = ?$
   F. $5a^5b^6$
   G. $5a^6b^9$
   H. $6a^2b^3$
   J. $6a^5b^6$ ←
   K. $6a^6b^9$

Multiply $3a^2b^3(2a^3b^3) =$
$6a^5b^6$

25. The expression $-8x^3(7x^6 - 3x^5)$ is equivalent to:

 A. $-56x^9 + 24x^8$
 B. $-56x^9 - 24x^8$
 C. $-56x^{18} + 24x^{15}$
 D. $-56x^{18} - 24x^{15}$
 E. $-32x^4$

41. For positive real numbers x, y, and z, which of the following expressions is equivalent to $x^{\frac{1}{2}}y^{\frac{2}{3}}z^{\frac{5}{6}}$?

A. $\sqrt[3]{xy^2z^3}$

B. $\sqrt[6]{xy^2z^5}$

C. $\sqrt[6]{x^3y^2z^5}$

D. $\sqrt[6]{x^3y^4z^5}$

E. $\sqrt[11]{xy^2z^5}$

20. Simplify $\sqrt[3]{16x^5y^4}$.

    f. $2xy\sqrt[3]{2x^2y}$

    g. $8x^2y$

    h. $8xy\sqrt[3]{2}$

    i. $2xy\sqrt[3]{xy}$

    j. $4x^2y^2\sqrt[3]{x}$