

**King Fahd University of Petroleum and Minerals**  
**Prep-Year Math Program**  
**Math (001)-Term (141)**  
**Recitation R.6**

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**Question1:** If  $x = (-8)^{-2/3}$  and  $y = \left(\frac{1}{16}\right)^{-3/2}$  find the value of  $x + y$

**Answer:**  $x + y = \frac{1}{4} + 64 = 64.25$

**Question2:** If  $x = 2$  and  $y = \frac{1}{2}$  find the value of  $\left[ \frac{\left(x^{1/6} y^{2/3}\right) \left(x^{1/2} y^{-1/2}\right)^{-1}}{x^{-2} y^{1/2}} \right]^3$

**Answer:** 8

**Question3:** Simplify:  $\frac{x^{-1} - y^{-1}}{(xy)^{-2}} \div \frac{x^{-2} - y^{-2}}{(xy)^{-3}}$

**Answer:**  $\frac{1}{x + y}$

**Question4:**

The expression  $(y^{-2} - x^{-2})^{-3n} (x^2 - y^2)^{2n} (x^2 y^2)^{-3n}$  simplifies to

- (a)  $\frac{1}{(x^2 - y^2)^n}$       (b)  $(x^2 + y^2)^n$       (c)  $\frac{x^2 - y^2}{x^2 + y^2}$   
 (d)  $x^n y^n$       (e)  $(x^2 y)^{-n} (x^2 + y^2)$

**Answer: (a):**  $\frac{1}{(x^2 - y^2)^n}$

**Question5:** Answer TRUE OR FALSE

(a): The value of  $\frac{2^{x+4} - 2(2^x)}{2(2^{x+3})}$  is equal  $\frac{1}{4}$  false

(b): The expression  $(x^{-1} + y^{-1})^{-1} = x + y$  false

(c): The value of  $(1 + 2^{-3})^{-1} + (1 + 2^3)^{-1}$  is equal to 1. True

(d): The expression  $\left[ x^{-1} - \frac{1}{x-1} - \frac{x+1}{x} \right]$  is equal to  $\frac{x}{x+1}$  false