PRACTICE SET

Easy

1. Which of the following is equivalent to the expression $\left(2x^4 - 5x^4\right)^2$?

   A) $-21x^8$

   B) $-6x^8$

   C) $9x^8$

   D) $9x^{16}$

2. Which of the following is equivalent to $\left(2b^3c^2 + b^2c - 4bc\right) - \left(b^3c^2 - b^2c - 4bc\right)$?

   A) 0

   B) b^3c^2

   C) $b^3c^2 + 2b^2c$

   D) $b^3c^2 + 2b^2c - 8bc$

3. When completely simplified, $\dfrac{25^4 \times 5^2}{25^5}$ has a value of:

   A) 0

   B) 1

   C) 5

   D) 25

4. Which of the following is equivalent to $x^{\frac{5}{7}}$, for all values of x?

   A) $\dfrac{5}{x^7}$

   B) $\dfrac{1}{x^2}$

   C) $\sqrt[5]{x^7}$

   D) $\sqrt[7]{x^5}$

5. Which of the following is the expanded form of $4(5x + 3)(2x - 1)$?

   A) $40x^2 + 12$

   B) $40x^2 - 12$

   C) $40x^2 - 4x + 12$

   D) $40x^2 + 4x - 12$

Medium

6. If $\dfrac{a^{x^2}}{a^{(x^2-y^2)}} = a^4$ and $y > 0$, what is the value of y?

   A) 0

   B) 1

   C) 2

   D) 4

7. Which sequence of steps correctly gives the value of $4^{\frac{3}{2}}$ and algebraically justifies the value?

   A) $4^{\frac{3}{2}} = (4^2)^{\frac{1}{3}} = \sqrt[3]{4^2} = \sqrt[3]{16}$

   B) $4^{\frac{3}{2}} = (4^2) \div 3 = 16 \div 3 = \dfrac{16}{3}$

   C) $4^{\frac{3}{2}} = (4^3) \div 2 = 64 \div 2 = 32$

   D) $4^{\frac{3}{2}} = (4^3)^{\frac{1}{2}} = \sqrt{4^3} = \sqrt{64} = 8$

8. What is the factored form of $16x^6 - 8x^3y^3 + y^6$?

   A) $(4x^3 - y^3)^2$

   B) $(4x^3 + y^3)^2$

   C) $(4x + y)^6$

   D) $(16x^2 + y)^3$