

**A.A.12: Powers of Powers 2: Multiply and divide monomial expressions with a common base, using the properties of exponents. Note: Use integral exponents only**

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

2 Which expression is equivalent to  $(3x^2)^3$ ?

3 Expressed in simplest form,  $(3x^3)(2y)^2(4x^4)$  is equivalent to

4 The expression  $(6x^3y^6)^2$  is equivalent to

5 The expression  $(-4a^3b)^2$  is equivalent to

6 The product of  $(5ab)$  and  $(-2a^2b)^3$  is

7 If  $x \neq 0$ , then  $\frac{(x^2)^3}{x^5} \cdot 1000$  is equivalent to

8 The expression  $\frac{(4x^3)^2}{2x}$  is equivalent to

9 The expression  $\frac{(10w^3)^2}{5w}$  is equivalent to

10 The expression  $\frac{(b^{2n+1})^3}{b^n \cdot b^{4n+3}}$  is equivalent to

11 Which equation is true?

1)  $\frac{c^5}{d^7} \div \frac{d^3}{c} = \frac{c^4}{d^4}$

2)  $(-2m^2p)^3 = -8m^6p^3$

3)  $\left(\frac{s^3t^8}{s^4t^5}\right)^2 = \frac{t^5}{s^2}$

4)  $(-2a^2b^3)(3ab^2) = a^3b^5$

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**Answer Section**

1 ANS:  
2

REF: 061312ia

2 ANS:  
 $27x^6$

REF: 080827ia

3 ANS:  
 $48x^7y^2$   
 $(3x^3)(2y)^2(4x^4) = (3x^3)(4y^2)(4x^4) = 48x^7y^2$

REF: 010529a

4 ANS:  
 $36x^6y^{12}$

REF: 010728a

5 ANS:  
 $16a^6b^2$

REF: 080824a

6 ANS:  
 $-40a^7b^4$   
 $(5ab)(-2a^2b)^3 = (5ab)(-8a^6b^3) = -40a^7b^4$

REF: 010506b

7 ANS:  
 $1000x$   
 $\frac{(x^2)^3}{x^5} \cdot 1000 = \frac{x^6}{x^5} \cdot 1000 = 1000x$

REF: 060518a

8 ANS:  
 $8x^5$   
 $\frac{(4x^3)^2}{2x} = \frac{16x^6}{2x} = 8x^5$

REF: 011216ia

9 ANS:

$$20w^5$$

$$\frac{(10w^3)^2}{5w} = \frac{100w^6}{5w} = 20w^5$$

REF: 011124ia

10 ANS:

$$b^n$$

$$\frac{(b^{2n+1})^3}{b^n \cdot b^{4n+3}} = \frac{b^{6n+3}}{b^{5n+3}} = b^n$$

REF: 080415b

11 ANS: 2

REF: 081318ia