

**A.A.12: Powers of Powers 1: 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  $a$ ?
  - 1) 12
  - 2) 2
  - 3) 32
  - 4) 4
- 2 Which expression is equivalent to  $(3x^2)^3$ ?
  - 1)  $9x^5$
  - 2)  $9x^6$
  - 3)  $27x^5$
  - 4)  $27x^6$
- 3 Expressed in simplest form,  $(3x^3)(2y)^2(4x^4)$  is equivalent to
  - 1)  $24x^{12}y^2$
  - 2)  $24x^7y^2$
  - 3)  $48x^{12}y^2$
  - 4)  $48x^7y^2$
- 4 The expression  $(6x^3y^6)^2$  is equivalent to
  - 1)  $36x^6y^{12}$
  - 2)  $36x^5y^8$
  - 3)  $12x^6y^{12}$
  - 4)  $6x^6y^{12}$
- 5 The expression  $(-4a^3b)^2$  is equivalent to
  - 1)  $-16a^6b^2$
  - 2)  $16a^6b^2$
  - 3)  $16a^5b^2$
  - 4)  $8a^6b^2$
- 6 The product of  $(5ab)$  and  $(-2a^2b)^3$  is
  - 1)  $-30a^6b^4$
  - 2)  $-30a^7b^4$
  - 3)  $-40a^6b^4$
  - 4)  $-40a^7b^4$
- 7 If  $x \neq 0$ , then  $\frac{(x^2)^3}{x^5} \cdot 1000$  is equivalent to
  - 1)  $1000x$
  - 2)  $1000 + x$
  - 3) 1000
  - 4) 0
- 8 The expression  $\frac{(4x^3)^2}{2x}$  is equivalent to
  - 1)  $4x^4$
  - 2)  $4x^5$
  - 3)  $8x^4$
  - 4)  $8x^5$
- 9 The expression  $\frac{(10w^3)^2}{5w}$  is equivalent to
  - 1)  $2w^5$
  - 2)  $2w^8$
  - 3)  $20w^5$
  - 4)  $20w^8$
- 10 The expression  $\frac{(b^{2n+1})^3}{b^n \cdot b^{4n+3}}$  is equivalent to
  - 1)  $\frac{b^n}{2}$
  - 2)  $b^n$
  - 3)  $b^{-3n}$
  - 4)  $b^{-3n+1}$
- 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: 4 REF: 080827ia

3 ANS: 4

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

REF: 010529a

4 ANS: 1 REF: 010728a

5 ANS: 2 REF: 080824a

6 ANS: 4

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

REF: 010506b

7 ANS: 1

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

REF: 060518a

8 ANS: 4

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

REF: 011216ia

9 ANS: 3

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

REF: 011124ia

10 ANS: 2

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

REF: 080415b

11 ANS: 2 REF: 081318ia