

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Module Test **A**

## Module 11

Determine whether each statement is true or false.

- $6^2 \cdot 6^3 = 6^5$  \_\_\_\_\_
- $x^3 \cdot x^4 = x^{12}$  \_\_\_\_\_
- $x^3 \cdot y^5 = (xy)^8$  \_\_\_\_\_
- $\frac{y^6}{y^2} = y^3$  \_\_\_\_\_
- $(x^3)^2 = x^6$  \_\_\_\_\_
- Any nonzero number raised to a power of zero is equal to zero. \_\_\_\_\_
- The number  $36.1 \times 10^8$  is written in scientific notation. \_\_\_\_\_
- $3x^2 + 5x^2 = 8x^2$  \_\_\_\_\_

Choose the correct response for each problem.

- Simplify:  $(x^2y)^4$ .  
 a.  $x^8y^4$       b.  $x^2y^4$       c.  $x^8y^5$       d.  $x^6y^4$
- Determine which of the following is not equal to 81.  
 a.  $(3^2)^2$       b.  $(-3)^4$       c.  $3^{-4}$       d.  $3^4$
- Simplify:  $(x + 8)(x - 8)$ .  
 a.  $x^2 - 64$       b.  $x^2 + 64$       c.  $x^2 - 16$       d.  $x^2 + 16$
- Simplify:  $(2x + 9)^2$ .  
 a.  $4x^2 - 81$       b.  $4x^2 + 81$       c.  $4x^2 - 36x + 81$       d.  $4x^2 + 36x + 81$
- Write  $2.53 \times 10^4$  in standard form.  
 a. 0.0000253      b. 0.000253      c. 25,300      d. 2,530,000
- Write  $7 \times 10^{-2}$  in standard form.  
 a. 0.007      b. 0.07      c. 70      d. 700

**15. Evaluate and leave answers in scientific notation.**

a.  $(4 \times 10^{-2})(2 \times 10^7)$  \_\_\_\_\_

b.  $(2.5 \times 10^4)(6 \times 10^3)$  \_\_\_\_\_

c.  $(1.3 \times 10^2)(5 \times 10^{-7})$  \_\_\_\_\_

d.  $\frac{3.6 \times 10^5}{1.2 \times 10^{-2}}$  \_\_\_\_\_

e.  $\frac{3 \times 10^{15}}{6 \times 10^2}$  \_\_\_\_\_

**16. Simplify the expressions by combining like terms.**

a.  $(5x^2 - 6x + 1) + (x^2 - 2x - 4)$  \_\_\_\_\_

b.  $(a^3 - 2a) + (-a^3 + 2a)$  \_\_\_\_\_

c.  $(6x - 2y) - (5x - 4y + 1)$  \_\_\_\_\_

d.  $(5h^3 - 2h) + (h^3 + h^2)$  \_\_\_\_\_

e.  $(k^3 - 7k) - (3k - k^4)$  \_\_\_\_\_

**17. Simplify the expressions by performing the indicated multiplication.**

a.  $2x^2y^4 \cdot 3xy^3$  \_\_\_\_\_

b.  $-4ab^2(2a^2 - b)$  \_\_\_\_\_

c.  $(x + 4)(x + 5)$  \_\_\_\_\_

d.  $(x + 5)(x - 5)$  \_\_\_\_\_

e.  $(x - 3)(x^2 + 3x + 9)$  \_\_\_\_\_

**18. Simplify the expressions by performing the indicated division.**

a.  $\frac{8x^6y^4}{12x^2y}$  \_\_\_\_\_

b.  $\frac{6b^3 + 8b^2 - 2b}{2b}$  \_\_\_\_\_

c.  $(x^2 + 4x - 21) \div (x - 3)$  \_\_\_\_\_

d.  $(6x^2 - 4 + 12x) \div (2x + 5)$  \_\_\_\_\_

e.  $(y^3 - 64) \div (y - 4)$  \_\_\_\_\_

**Answer these questions using the directions given.**19. Write the *multiplication rule for exponents* algebraically. Then, explain the rule

with a complete sentence. \_\_\_\_\_

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20. What words do the letters in FOIL represent? Explain how this Method is used to multiply two binomials. Use complete sentences.

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