

NAME _____

DATE _____

Module Test **B**

Module 11

Determine whether each statement is true or false.

- $5^7 \cdot 5^4 = 25^{11}$ _____
- $y^6 \cdot y^2 = y^8$ _____
- $x^3 \cdot y^5 = (xy)^{15}$ _____
- $\frac{x^7}{x^4} = x^3$ _____
- $(x^4)^5 = x^9$ _____
- Any non-zero number raised to a power of zero is equal to one. _____
- The number 5.2×10^{-3} is written in scientific notation. _____
- $6x^3 + 2x^3 = 8x^6$ _____

Choose the correct response for each problem.

- Simplify: $(a^3b^5)^2$.
 a. a^3b^{10} b. a^5b^7 c. a^9b^{25} d. a^6b^{10}
- Determine which of the following is not equal to $\frac{1}{16}$.
 a. 2^{-4} b. $(-4)^2$ c. 4^{-2} d. $\left(\frac{1}{2}\right)^4$
- Simplify: $(4x - 5)(4x + 5)$.
 a. $x^2 - 40x + 25$ b. $4x^2 - 25$ c. $16x^2 - 25$ d. $8x^2 - 10$
- Simplify: $(x - 4)^2$.
 a. $x^2 - 16$ b. $x^2 + 8x + 16$ c. $x^2 - 8x - 16$ d. $x^2 - 8x + 16$
- Write 1.6×10^3 in standard form.
 a. 16,000 b. 1,600 c. 0.00016 d. 0.0016
- Write 3×10^{-5} in standard form.
 a. 0.00003 b. 0.000003 c. 30,000 d. 300,000

15. Evaluate and leave answers in scientific notation.

a. $\frac{7.2 \times 10^3}{2 \times 10^{11}}$ _____

b. $\frac{3.2 \times 10^{15}}{1.6 \times 10^4}$ _____

c. $\frac{1.5 \times 10^8}{6 \times 10^3}$ _____

d. $(3 \times 10^6)(3 \times 10^{-1})$ _____

e. $(5.1 \times 10^{-9})(2 \times 10^{-4})$ _____

16. Simplify the expressions by combining like terms.

a. $(3a + c - 2b) + (2c - 5b + a)$ _____

b. $(3x^2 + xy - 2y^2) - (x^2 - 7xy + y^2)$ _____

c. $(y^3 + 4y - 1) - (2y^3 - 5y^2 + y)$ _____

d. $(3x^2 + xy - 2y^2) - (x^2 - 7xy + y^2)$ _____

e. $(6p^2 + 7) + (3p^2 - 4p + 2)$ _____

17. Simplify the expressions by performing the indicated multiplication.

a. $-3x(x^3 - 4x)$ _____

b. $r^3s^2(r^2 + 3rs - s^2)$ _____

c. $(x + 7y)(x - 4y)$ _____

d. $(x - 1)^2$ _____

e. $(x + 3y)^2$ _____

18. Simplify the expressions by performing the indicated division.

a. $\frac{10a^7b^4}{2ab^{-3}}$ _____

b. $\frac{6x^6 - 12x^4 + 3x^2}{3x^2}$ _____

c. $(2x^3 + 20 - 5x^2 - 17x) \div (x - 4)$ _____

d. $(3a^2 - 11a + 7) \div (3a - 5)$ _____

e. $(x^3 + 6x^2 - 14) \div (x + 2)$ _____

Answer these questions using the directions given.

19. Write the *division rule for exponents* algebraically. Then, explain the rule with a complete sentence. _____
- _____

20. Explain how using the Distributive Property twice and the FOIL Method are related for finding the product of two binomials. Use complete sentences.



