Algebra 2 Trigonometry Name _____
Ch 4 Standardized Questions

Work the following problems on a separate piece of paper. Choose the correct answer.

1. For all a> 1, the expression $\frac{3a^4}{3a^6}$ equals:

A. $\frac{1}{2}$ B. $-a^2$ C. a^2 D. $-\frac{1}{a^2}$ E. $\frac{1}{a^2}$

2. $\left(3x^3\right)^3$ is equivalent to:

A. x B. $9x^6$ C. $9x^9$ D. $27x^6$ E. $27x^9$

3. For any nonzero value of y, $\left(y^{-5}\right)^3$ = ?

A. $\frac{1}{y^{15}}$ B. $\frac{1}{y^2}$ C. y^8 D. y^{15} E. y^{125}

4. Which of the following is equivalent to $\left(3x^3\right)^{-2}$?

A. $\frac{1}{9x^6}$ B. $\frac{1}{9x^9}$ C. $\frac{3}{x^6}$ D. $-6x^3$ E. $-9x^6$

5. The average distance from Earth to the Sun, which is 9.3×10^7 miles, is about how many times the average distance from Earth to the Moon, which is 2.4×10^5 miles?

A. $4x10^2$ B. $7x10^2$ C. $4x10^{12}$ $1x10^{13}$ E. $2x10^{13}$

6. If $\frac{x^a}{x^b} = x^3$ for all x≠0, which of the following must be true?

A. $a - b = 3$

B. $a + b = 3$

C. $a \div b = 3$

D. $a \times b = 3$

E. $\sqrt{ab} = 3$

7. Which of the following is the least common denominator for the expression below?

$$\frac{1}{13^2 \cdot 17 \cdot 23} + \frac{1}{17^2 \cdot 23} + \frac{1}{17 \cdot 23^3}$$

A. $17 \cdot 23$

B. $13 \cdot 17 \cdot 23$

C. $13^2 \cdot 17 \cdot 23$

D. $13^2 \cdot 17^2 \cdot 23^3$

E. $13^2 \cdot 17^4 \cdot 23^5$

8. For all x and y, $(2x - y)(x^2 + y) = ?$

A. $2x^2 - y2$

B. $2x^3 - y^2$

C. $2x^3 + xy - y^2$

D. $2x^3 + 2xy - x^2y^2$

E. $2x^3 - x^2y + 2xy - y^2$