Algebra 1 Name_____ ID: 1

Exponential Terms Raised to a Power

Date_____ Period____

Simplify. Your answer should contain only positive exponents.

1) $(4uv)^4$

A) $256u^4v^4$ B) $\frac{1}{16u^6v^4}$

C) $256v^4u^{16}$ D) $9u^6v^6$

2) $(2x^2y^{-1})^3$

A) $\frac{8x^6}{y^3}$ B) 1

C) x^6y^4 D) $\frac{x^{16}}{y^8}$

3) $(3x^4)^2$

A) $\frac{x^{16}}{256}$ B) 1

C) $9x^8$ D) $\frac{16}{x^4}$

4) $(2m^2n^3)^{-4}$

A) $27m^6$ B) $\frac{1}{16m^8n^{12}}$

C) $m^{12}n^{12}$ D) $\frac{m^3}{4n^3}$

5) $(4x^2y^4)^2$

A) $16x^4y^8$ B) $\frac{y^8}{9x^6}$

C) $8x^3y^{12}$ D) $9x^6$

6) $(3x^3)^{-1}$

A) 1 B) $\frac{1}{3x^3}$

C) $\frac{1}{4x^4y^2}$ D) $256x^4$

7) $(yx^{-1})^3$

A) $\frac{16y^{16}}{x^{12}}$ B) $\frac{1}{x^8}$

C) $\frac{y^3}{x^3}$ D) $\frac{81x^8}{y^8}$

8) $(4x^3y^{-1})^2$

A) $\frac{64}{x^3}$ B) $8x^{12}y^{12}$

C) $\frac{16x^6}{y^2}$ D) $\frac{1}{9x^4y^6}$

9) $(4x^4y^3)^3$

A) x^6 B) $\frac{27}{x^{12}}$

C) 1 D) $64x^{12}y^9$

10) $(2u^3v^3)^{-1}$

A) $16v^4$ B) $\frac{1}{2u^3v^3}$

C) u^{16} D) $\frac{1}{64u^3v^{12}}$

11) $(4x^2y^3)^4$

A) $256x^8y^{12}$ B) $\frac{1}{y^3}$

C) $\frac{x^8}{4y^6}$ D) $8x^3$

12) $(2y^{-1})^4$

A) x^3y^{12} B) 256

C) $\frac{16x^6}{y^6}$ D) $\frac{16}{y^4}$

13) $(x^0y^4)^2$

A) y^8 B) $16x^{12}y^8$
C) 1 D) $16x^2y^2$

14) $(2y^{-2})^4$

A) 9 B) $\frac{27x^3}{y^6}$
C) $16x^6$ D) $\frac{16}{y^8}$

15) $(4x^0y^2)^3$

A) $64y^6$ B) $16x^6y^8$
C) $\frac{y^6}{x^4}$ D) $\frac{1}{16x^{12}}$

16) $(2xy^4)^0$

A) x^9y^6 B) $8y^3x^6$
C) 1 D) $\frac{1}{8x^{12}y^6}$

17) Trevon's school is selling tickets to the annual talent show. On the first day of ticket sales the school sold 11 adult tickets and 14 student tickets for a total of $89. The school took in $64 on the second day by selling 12 adult tickets and 7 student tickets. Find the price of an adult ticket and the price of a student ticket.

A) adult ticket: $4, student ticket: $3 B) adult ticket: $3, student ticket: $4
C) adult ticket: $1, student ticket: $6 D) adult ticket: $5, student ticket: $2

18) Imani and Stefan each improved their yards by planting hostas and shrubs. They bought their supplies from the same store. Imani spent $31 on 4 hostas and 1 shrub. Stefan spent $148 on 12 hostas and 8 shrubs. What is the cost of one hosta and the cost of one shrub?

A) hosta: $11, shrub: $5 B) hosta: $8, shrub: $6
C) hosta: $4, shrub: $6 D) hosta: $5, shrub: $11

19) A boat traveled 147 miles downstream and back. The trip downstream took 7 hours. The trip back took 49 hours. Find the speed of the boat in still water and the speed of the current.

A) boat: 19 mph, current: 5 mph B) boat: 19 mph, current: 10 mph
C) boat: 8 mph, current: 8 mph D) boat: 12 mph, current: 9 mph

20) Ming's school is selling tickets to the annual talent show. On the first day of ticket sales the school sold 14 senior citizen tickets and 5 student tickets for a total of $247. The school took in $104 on the second day by selling 7 senior citizen tickets and 1 student ticket. Find the price of a senior citizen ticket and the price of a student ticket.

A) senior citizen ticket: $8, student ticket: $17
B) senior citizen ticket: $6, student ticket: $14
C) senior citizen ticket: $21, student ticket: $10
D) senior citizen ticket: $13, student ticket: $13

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A) $\frac{x^{16}}{256}$ B) 1

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6) $(3x^3)^{-1}$

A) 1 *B) $\frac{1}{3x^3}$

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C) hosta: $4, shrub: $6 *D) hosta: $5, shrub: $11

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