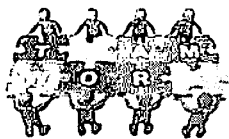


Group Members: _____

Per: _____



Review: Operations with Monomials

Directions: Work together to simplify each expression using the exponent rules. Do not divide up the work! Each person should be participating. At the end of class, one person's paper will be chosen at random and graded for the group.

RULES REVIEW

Zero Exponent	Negative Exponent	Product Rule	Quotient Rule	Power Rule
$x^0 = 1$	$x^{-a} = \frac{1}{x^a}$	$x^a \cdot x^b = x^{a+b}$	$\frac{x^a}{x^b} = x^{a-b}$	$(x^a)^b = x^{ab}$
<p>What is the rule for adding and subtracting monomials? Combine like terms. Keep variables + exponents the same, add/subtract coefficients</p>				
<p>Directions: Fill in the box with the missing exponent.</p>				
1. $6^2 \cdot 6^{\boxed{10}} = 6^{12}$	2. $\frac{(-2)^{\boxed{-2}}}{(-2)^5} = (-2)^{-7}$	3. $(x^5)^{\boxed{3}} = x^{15}$	4. $3a^5b^8 + a^5b^8 = 4a^{\boxed{5}}b^{\boxed{8}}$	

ADDING & SUBTRACTING MONOMIALS

Directions: Simplify each expression.		
5. $6w^2 + 11w^2$ $17w^2$	6. $-2x^{13}y^6 - 8x^{13}y^6$ $-10x^{13}y^6$	7. $-5rs - (-5rs)$ 0
8. $-5ab - 6b + 19ab - b$ $14ab - 7b$	9. $4x^2 - 3x - x - 27 + 5x^2$ $9x^2 - 4x - 27$	10. $15mn - m^2 + n^2 - 28mn + 3m^2$ $2m^2 - 13mn + n^2$
11. Subtract $8rs$ from $(-3rs)$. $-3rs - 8rs$ $= 11rs$	12. Find the sum of $2p^5q^7$ and $(-16p^5q^7)$. $2p^5q^7 + (-16p^5q^7)$ $= -14p^5q^7$	

MULTIPLYING & DIVIDING MONOMIALS

Directions: Simplify each expression. Final answers must contain only positive exponents.		
13. $x^7 \cdot x^5$ x^{12}	14. $w^{-3} \cdot w^{-4}$ $w^{-7} = \frac{1}{w^7}$	15. $(7k^4)(3k^9)$ $21k^{13}$

16. $6a^{-2}b^{-1} \cdot (-2a^{11}b^{-4})$ $-12a^9b^{-5} = \boxed{\frac{-12a^9}{b^5}}$	17. $\frac{6^{12}}{6^{14}}$ $b^{-2} = \boxed{\frac{1}{b^2}}$	18. $\frac{m^7n^{16}}{m^4n^2}$ $\boxed{m^3n^{14}}$
19. $\frac{45p^3}{5p^{-1}}$ $\boxed{9p^4}$	20. $\frac{20a^{-2}}{-10a^{-10}}$ $\boxed{-2a^8}$	21. $\frac{16c^{-6}d^{-2}}{12c^{-5}d^2}$ $\frac{4}{3}c^{-1}d^{-4} = \boxed{\frac{4}{3cd^4}}$

POWERS OF MONOMIALS

Directions: Simplify each expression. Final answers must contain only positive exponents.

22. $(3^4)^5$ $\boxed{3^{20}}$	23. $(k^3)^8$ $\boxed{k^{24}}$	24. $(w^{-2})^9$ $w^{-18} = \boxed{\frac{1}{w^{18}}}$
25. $(9w^7)^2$ $\boxed{81w^{14}}$	26. $(-2a^3b^4)^5$ $\boxed{-32a^{15}b^{20}}$	27. $(4r^2s^{-1})^{-3}$ $\frac{1}{64}r^{-6}s^3 = \boxed{\frac{s^3}{64r^6}}$

MIXED PRACTICE

Directions: Simplify each expression. Final answers must contain only positive exponents.

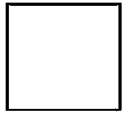
28. $\frac{15h^{16}}{5h^4} \cdot 9h^2$ $3h^{12} \cdot 9h^2$ $\boxed{27h^{14}}$	29. $19x^8y^{18} - (6x^4y^9)^2$ $19x^8y^{18} - 36x^8y^{18}$ $\boxed{-17x^8y^{18}}$	30. $\frac{28p^5}{(2p^4)^3} \cdot \frac{28p^5}{8p^{12}}$ $= \frac{7}{2}p^{-7} = \boxed{\frac{7}{2p^7}}$
31. $-6m^5n^2 \cdot 2m^2n^9 + 15m^7n^{11}$ $-12m^7n^{11} + 15m^7n^{11}$ $= \boxed{3m^7n^{11}}$	32. $(12w^7 \cdot \frac{5}{6}w^{-3})^2$ $(10w^4)^2$ $= \boxed{100w^8}$	33. $\frac{-8p^8 \cdot 12p^6}{16p^3}$ $\frac{-96p^{14}}{16p^3} = \boxed{-6p^{11}}$
34. $-7r^4s^{15} + \frac{20r^{-2}s^{16}}{4r^{-6}s}$ $-7r^4s^{15} + 5r^4s^{15}$ $\boxed{-2r^4s^{15}}$	35. $\frac{18x^5y}{10xy^2 - 2xy^2}$ $\frac{18x^5y}{8xy^2}$ $= \frac{9}{4}x^4y^{-1} = \boxed{\frac{9x^4}{4y}}$	36. $(2c^5d^2 - 5c^5d^2)^4$ $(-3c^5d^2)^4$ $= \boxed{81c^{20}d^8}$

Name: _____

Unit 2: Algebraic Expressions

Date: _____ Per: _____

Homework 8: Review: Monomial Operations



Directions: Simplify the following monomials. Express final answers using only positive exponents.

1. $-11a^4b^9 + 6a^4b^9$ $-5a^4b^9$	2. $-k - 3k^2 + 5k^2 - 8k$ $2k^2 - 9k$	3. Subtract $2m$ from $(-7m)$. $-7m - 2m$ $-9m$
4. $x^8 \cdot x^3$ x^{11}	5. $-15k^3 \cdot 3k^{-10}$ $-45k^{-7} = \frac{-45}{k^7}$	6. $(-9rs^2) \cdot (-2r^{-5}s^{12})$ $18r^{-4}s^{14} = \frac{18s^{14}}{r^4}$
7. $\frac{w^{12}}{w^3}$ w^9	8. $\frac{40p^8q^2}{-5p^2q^3}$ $-8p^6q^{-1} = \frac{-8p^6}{q}$	9. $\frac{6c^{-1}d^{-3}}{15c^2d^{-11}}$ $\frac{2}{5}c^{-3}d^8 = \frac{2d^8}{5c^3}$
10. $(x^5)^6$ x^{30}	11. $(-12a^2b^{-6})^2$ $144a^4b^{-12} = \frac{144a^4}{b^{12}}$	12. $(3m^7n^6)^{-3}$ $\frac{1}{27}m^{-21}n^{-18} = \frac{1}{27m^{21}n^{18}}$
13. $\frac{(6w^7)^2}{4w^{11}}$ $\frac{36w^{14}}{4w^{11}} = 9w^3$	14. $\frac{-28k^2}{4k^5 \cdot 2k^9}$ $\frac{-28k^2}{8k^{14}} = -\frac{7}{2}k^{-12} = \frac{-7}{2k^{12}}$	
15. $(4r^8s)^3 + 2r^{24}s^3$ $64r^{24}s^3 + 2r^{24}s^3$ $66r^{24}s^3$	16. $-2ab \cdot \frac{24a^2b^3}{3a^4b^2}$ $-2ab \cdot 8a^{-2}b^1$ $-16a^{-1}b^2 = \frac{-16b^2}{a}$	
17. $2c^3d \cdot (-7c^{-2}d)^2$ $2c^3d \cdot 49c^{-4}d^2$ $98c^{-1}d^3 = \frac{98d^3}{c}$	18. $14pq - \frac{18p^{-3}q^8}{2p^{-4}q^7}$ $14pq - 9pq = 5pq$	
19. $-9x^8y^3 \cdot 4x^{-2}y^{11} + 7x^6y^{14}$ $-36x^6y^{14} + 7x^6y^{14}$ $-29x^6y^{14}$	20. $\frac{36m^{25}n^{14}}{(4m^7n^5)^3}$ $\frac{36m^{25}n^{14}}{64m^{21}n^{15}} = \frac{9}{16}m^4n^{-1} = \frac{9m^4}{16n}$	