



Name: _____

Period: _____ Date: _____

Exponents - Mixed

Section I. Simplify. Write all answers with positive exponents

1. $h^3 \cdot h^7$

2. $\frac{j^9}{j^6}$

3. p^{-12}

4. $(c^4)^{10}$

5. $(df)^{17}$

6. $\left(\frac{a}{b}\right)^{14}$

7. $23g^0$

8. $(5e)^3$

9. $\left(\frac{3g}{h}\right)^4$

10. $3m^{-8}$

11. $(2n^{-6})^5$

12. $\frac{a^{13}b^5}{a^9b^2}$

13. $\frac{m^{-4}n^8}{m^3n^0}$

14. $(7x^9)^2 \cdot 3x^{11}$

15. $(5x^{-7})^3 \cdot (3x)^4$

16. $(2x^5y^{-3})^5 \cdot (12x^{-4}y)^2$





17. $\frac{10}{m^{-8}}$

18. $\frac{k^4}{k^{-6}}$

19. $\frac{x^{-3}y^4}{x^5y^{-9}}$

20. $(h^{-3}g^2)^{-5}$

Section II. Write all answers in exponential form

17. $\frac{1}{5 \cdot 5 \cdot 5 \cdot 5 \cdot 5}$

18. $(3x) \cdot (3x) \cdot (3x) \cdot (3x)$

19. $(2\pi) \cdot (2\pi) \cdot (2\pi) \cdot$

20. $\frac{1}{y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y}$

21. $\frac{a \cdot a \cdot a}{b \cdot b \cdot b \cdot b \cdot b \cdot b}$

22. $(2m^4) \cdot (2m^4) \cdot (2m^4) \cdot (2m^4) \cdot (2m^4)$

Fill in the following table.

Exponential Form	Base	Exponent	Expanded Form	Standard Form
	$4x$	3		
$(5)^{-3}$				
			$(2 \times 2 \times 2)(2 \times 2)$	
	3			27
x^3				
			$(7x)(7x)(7x)$	

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Negative & Zero Exponents

Section I. Simplify. Write all answers with positive exponents

1. y^{-3}

2. $6^{-2} \cdot h^4$

3. $m^{-3} \cdot n^7$

4. $\frac{f^7}{f^{12}}$

5. $5w^{-6}$

6. $h^{-2} \cdot h^4$

7. $\frac{7y^5}{28y^4}$

8. $\frac{a^{-6}}{a^2}$

9. $\frac{y^7x^3}{y^3x^6}$

10. $\frac{50x^4}{25x^9}$

11. $\frac{f^8g^{-5}}{f^2g^3}$

12. $6g^{-2} \cdot 4g^4$

13. $\frac{c^{12}d^{-3}}{c^7d^0}$

14. $14q^0$

15. $\frac{3m^{-5}n^{-6}}{9m^8n^0}$

16. $\frac{10v^0w^6}{2v^{-3}w^{15}}$

Determine whether each statement is True or False.

1. $5 \in \mathbb{Z}$

7. $-0.25 \in \mathbb{R}^*$

2. $-\frac{1}{2} \in \mathbb{Q}$

8. $\mathbb{R} \subseteq \mathbb{R}$

3. $-4 \in \mathbb{N}$

9. $\sqrt{2} \in \mathbb{Q}$

4. $\mathbb{Z} \subseteq \mathbb{Q}$

10. $\mathbb{N} \subseteq \mathbb{Z}$

5. $\pi \in \mathbb{Q}$

11. $\mathbb{Q} \subseteq \mathbb{Q}$

6. $\mathbb{R} \subseteq \mathbb{N}$

12. $\sqrt{16} \in \mathbb{Q}$

Complete the following table.

Inequality	Number line	Interval
$x < 3$		
		$]-\infty, 0]$
		$[1, 4]$
$-1 < x \leq 3$		
$0 < x < 5$		
		$]3, 6[$
$x > 4$		
		$[-2, 2[$
$-2 < x < 4$		
$0 < x < 3$		

Write 3 natural numbers.

Write 3 irrational numbers

Write 3 integers

Simplify the following fractional exponents.

EX: $\sqrt{25} = 25^{\frac{1}{2}} = \underline{5}$

$$\sqrt{36} = \underline{\quad} = \underline{\quad}$$

$$\sqrt{144} = \underline{\quad} = \underline{\quad}$$

$$\sqrt[3]{27} = \underline{\quad} = \underline{\quad}$$

$$\sqrt[4]{16} = \underline{\quad} = \underline{\quad}$$

$$\sqrt{100} = \underline{\quad} = \underline{\quad}$$