

Reflection Sheet

Name: _____ Date: _____ Week #: _____

Assignments	Grade	Comments
Parent Signature		Please sign weekly

Date	Class work	Homework (must write in planner as well)
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		

******Students must complete their homework daily, 100%; the consequence = silent lunch daily******

Parent Signature: _____

Essential Questions	Answers
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Name: _____ Date: _____ Week: _____

"Warm-up's Q1W4"

Monday Warm-up

Solve.

$$(-2) + (-9) =$$

$$(-18) + (-6) =$$

$$(-21) + (-38) =$$

$$(-15) + (-20) =$$

$$(-11) + (-12) =$$

$$(-7) + (-4) =$$

$$(-19) + (-5) =$$

$$(-7) + (-2) =$$

Show all your work

Tuesday Warm-up

8.NS.2

Estimate the irrational number to the nearest whole number.

a. $\sqrt{13}$

b. $\sqrt{103}$

c. $\sqrt{420}$

Show all work here

Wednesday Warm-up

(8.EE.1)

What is the value of the following expression?

$$\frac{(3^3)^4}{(3^5)(3^2)}$$

Show all work here

Thursday Warm-up

Solve. $\frac{1}{3} + -3\frac{1}{8}$

EXPONENT RULES & PRACTICE

1. **PRODUCT RULE:** To multiply when two bases are the same, write the base and ADD the exponents.

$$x^m \cdot x^n = x^{m+n}$$

Examples:

A. $x^3 \cdot x^8 = x^{11}$

B. $2^4 \cdot 2^2 = 2^6$

C. $(x^2y)(x^3y^4) = x^5y^5$

2. **QUOTIENT RULE:** To divide when two bases are the same, write the base and SUBTRACT the exponents.

$$\frac{x^m}{x^n} = x^{m-n}$$

Examples:

A. $\frac{x^5}{x^2} = x^3$

B. $\frac{3^5}{3^3} = 3^2$

C. $\frac{x^2y^5}{xy^3} = xy^2$

3. **ZERO EXPONENT RULE:** Any base (except 0) raised to the zero power is equal to one.

$$x^0 = 1$$

Examples:

A. $y^0 = 1$

B. $6^0 = 1$

C. $(7a^3b^{-1})^0 = 1$

4. **POWER RULE:** To raise a power to another power, write the base and MULTIPLY the exponents.

$$(x^m)^n = x^{m \cdot n}$$

Examples:

A. $(x^3)^2 = x^6$

B. $(3^2)^4 = 3^8$

C. $(z^5)^2 = z^{10}$

5. **EXPANDED POWER RULE:**

$$(xy)^m = x^m y^m \quad \left(\frac{x}{y}\right)^m = \frac{x^m}{y^m}$$

Examples:

A. $(2a)^3 = 2^3 a^3 = 8a^3$

C. $\left(\frac{x^2}{y}\right)^4 = \frac{(x^2)^4}{y^4} = \frac{x^8}{y^4}$

B. $(6x^3)^2 = 6^2 (x^3)^2 = 36x^6$

D. $\left(\frac{2x}{3y^2}\right)^3 = \frac{(2x)^3}{(3y^2)^3} = \frac{2^3 x^3}{3^3 (y^2)^3} = \frac{8x^3}{27y^6}$

6. **NEGATIVE EXPONENTS:** If a factor in the numerator or denominator is moved across the fraction bar, the sign of the exponent is changed.

$$x^{-m} = \frac{1}{x^m} \quad \frac{1}{x^{-m}} = x^m \quad \left(\frac{x}{y}\right)^{-n} = \left(\frac{y}{x}\right)^n$$

Examples:

A. $x^{-3} = \frac{1}{x^3}$

B. $4^{-2} = \frac{1}{4^2} = \frac{1}{16}$

C. $-4x^5y^{-2} = \frac{-4x^5}{y^2}$

D. $\left(\frac{x^2}{y}\right)^{-3} = \left(\frac{y}{x^2}\right)^3 = \frac{y^3}{x^6}$

E. $(3x^{-2}y)(-2xy^{-3}) = -6x^{-1}y^{-2} = \frac{-6}{xy^2}$

F. $\frac{a^{-2}b^3}{c^{-4}d^{-1}} = \frac{b^3c^4d}{a^2}$

G. $(-2x^2y^{-4})^{-2} = \left(\frac{-2x^2}{y^4}\right)^{-2} = \left(\frac{y^4}{-2x^2}\right)^2 = \frac{y^8}{4x^4}$

CAUTION: $-x \neq \frac{1}{x}$ For example: $-3 \neq \frac{1}{3}$

REMEMBER: An exponent applies to only the factor it is directly next to *unless* parentheses enclose other factors.

Examples:

A. $(-3)^2 = (-3)(-3) = 9$

B. $-3^2 = -9$

Exponents and Division

Simplify. Your answer should contain only positive exponents.

1) $\frac{5^4}{5}$

2) $\frac{3}{3^3}$

3) $\frac{2^2}{2^3}$

4) $\frac{2^4}{2^2}$

5) $\frac{3r^3}{2r}$

6) $\frac{7k^2}{4k^3}$

7) $\frac{10p^4}{6p}$

8) $\frac{3b}{10b^3}$

9) $\frac{8m^3}{10m^3}$

10) $\frac{7n^3}{2n^5}$

11) $\frac{2n^2}{n}$

13) $\frac{12x^3}{9y^8}$

15) $\frac{11u^4}{17uv^9}$

17) $\frac{12yz^4}{10yx^8}$

19) $\frac{5n^8}{20n^8}$

12) $\frac{8x^3}{10x^5}$

14) $\frac{14x^4y^7}{6x^5y^4}$

16) $\frac{4y}{14yx^8}$

18) $\frac{18x^8y^8}{10x^3}$

20) $\frac{16yx^4}{9x^8y^2}$

Powers of Products and Quotients

Date _____

Period _____

Simplify. Your answer should contain only positive exponents.

1) $(3a^2)^3$

2) $(2r^4)^4$

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

4) $(6b^2)^2$

5) $(7y^4)^2$

6) $(3ab^4)^4$

7) $(2x^4y^4)^3$

8) $(5mn^3)^3$

9) $(x^2y)^2$

10) $(6yx^4)^2$

11) $(a^4b^3)^2$

12) $(2x^4y^4)^4$

13) $(3x^2 \cdot 2x^2)^2$

14) $(2p^3 \cdot 2p)^2$

15) $(4n^3 \cdot n^2)^2$

16) $(3x \cdot 2x)^2$

17) $(4x^4 \cdot x^4)^3$

18) $(4r^4 \cdot r)^2$

More Properties of Exponents

Date _____

Period _____

Simplify. Your answer should contain only positive exponents.

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

2) $(x^4)^{-3} \cdot 2x^4$

3) $(r^3)^3 \cdot 2r^{-1}$

4) $(2v)^2 \cdot 2v^2$

5) $\frac{2x^2y^4 \cdot 4x^2y^4 \cdot 3x}{3x^{-3}y^2}$

6) $\frac{2y^3 \cdot 3xy^3}{3x^2y^4}$

7) $\frac{x^3y^3 \cdot x^3}{4x^2}$

8) $\frac{3x^2y^2}{2x^{-1} \cdot 4yx^2}$

9) $\frac{x}{(2x^0)^2}$

10) $\frac{2m^{-4}}{(2m^{-4})^3}$

Squares and Square Roots (A)

Instructions: Find the square root or square of each integer.

$$11) \frac{(2m^2)^{-1}}{m^2}$$

$$13) (a^{-3}b^{-3})^0$$

$$15) ba^4 \cdot (2ba^4)^{-3}$$

$$17) \frac{2k^3 \cdot k^2}{k^{-3}}$$

$$19) \frac{(2x)^{-4}}{x^{-1} \cdot x}$$

$$21) \frac{(2pm^{-1}q)^{-4} \cdot 2m^{-1}p^3}{2pq^2}$$

$$12) \frac{2x^3}{(x^{-1})^3}$$

$$14) x^4y^3 \cdot (2y^2)^0$$

$$16) (2x^0y^2)^{-3} \cdot 2yx^3$$

$$18) \frac{(x^{-3})^4 x}{2x^{-3}}$$

$$20) \frac{(2x^2z)^3}{x^3y^4z^2 \cdot x^{-4}z^3}$$

$$22) \frac{(2hj^2k^{-2} \cdot k^4j^{-1}k^4)^0}{2h^{-3}j^{-4}k^{-2}}$$

$$\sqrt{256} = \sqrt{4} = \sqrt{169} = \sqrt{100} =$$

$$\sqrt{121} = \sqrt{196} = \sqrt{16} = \sqrt{64} =$$

$$\sqrt{1} = \sqrt{9} = \sqrt{49} = \sqrt{144} =$$

$$\sqrt{225} = \sqrt{81} = \sqrt{25} = \sqrt{36} =$$

$$11^2 = 13^2 = 14^2 = 10^2 =$$

$$12^2 = 1^2 = 15^2 = 6^2 =$$

$$9^2 = 3^2 = 4^2 = 16^2 =$$

$$8^2 = 7^2 = 5^2 = 2^2 =$$

Square Roots

Find each square root.

1) $\sqrt{64}$

3) $\sqrt{49}$

5) $\sqrt{25}$

7) $\sqrt{9}$

Find each square root. Round to the nearest whole number.

9) $-\sqrt{200}$

11) $-\sqrt{80}$

13) $-\sqrt{127}$

15) $-\sqrt{36}$

Find each square root.

17) $-\sqrt{\frac{1}{4}}$

19) $\sqrt{\frac{49}{196}}$

21) $-\sqrt{\frac{25}{196}}$

2) $\sqrt{36}$

4) $\sqrt{0}$

6) $\sqrt{1}$

8) $\sqrt{4}$

10) $\sqrt{144}$

12) $-\sqrt{34}$

14) $\sqrt{1}$

16) $-\sqrt{148}$

18) $\sqrt{\frac{81}{121}}$

20) $\sqrt{\frac{81}{49}}$

22) $-\sqrt{\frac{196}{225}}$