

Exam 1 Review Sheet

Name: _____

Please show all your work to get full credit.

1. Fill in the blanks below so that each statement is a true statement.
 - a. In the expression $\sqrt[4]{16}$, 4 is called _____ and 16 is called _____.
 - b. In the polynomial $5x^6 - 7x^4 + 3.5x^3 - \sqrt{2}x - \frac{17}{3}$, 6 is the _____ of the polynomial, 5 is the _____, and $-\frac{17}{3}$ is called the _____.
 - c. For real numbers a and b , $a + b = b + a$ is due to the _____ of addition.
 - d. For real numbers a and b , $a(b + c) = ab + ac$ is due to the _____ property.

For the parts e-j assume all variables are positive real numbers.

<p>e.</p> $\boxed{}^{\boxed{}} \times \boxed{}^{\boxed{}} = \left(\frac{1}{4}\right)^9$	<p>f.</p> $\frac{\boxed{}^{\boxed{}}}{a^{12}} = a^4$
<p>g.</p> $\sqrt{\boxed{}^{\boxed{}}} = 5$	<p>h.</p> $\sqrt[3]{\boxed{}} = a^5$
<p>i.</p> $\sqrt[5]{\boxed{}} = x^3 y^2 \sqrt[5]{x^2 y}$	<p>j.</p> $\begin{aligned} &(5x^3 + 2x^2 + 10) \\ &+ (\boxed{}) \\ &= 12x^3 + 8x^2 + 7x + 14 \end{aligned}$

2. Answer true or false and justify your answers.

- $\sqrt{x^2 + y^2} = x + y$, where x , and y are positive real numbers.
- $(x + y)^2 = x^2 + y^2$ where x , and y are real numbers.
- $-3^2 = \frac{1}{3^2}$
- $2.\overline{14}$ is an irrational number.

3. Match all the quantities in Column B that are equivalent to quantities in Column A. Some of the column B quantities may not have any corresponding items in column A, but all items in column A have at least one or more corresponding items in column B.

Column A	Column B	
i. -5^{-2}	A. $1 + \frac{3}{4}$	O. $-\frac{16}{3}$
ii. $\sqrt{25}$	B. $\frac{-13}{-3}$	P. 8
iii. $-\frac{1}{4}$	C. $\frac{7}{4}$	Q. $2\sqrt{2}\frac{1}{5}$
iv. $\frac{1}{3^{-2}}$	D. -25	R. 175%
v. $-\frac{1}{9^{-\frac{1}{2}}}$	E. 0.75	S. $2^3\sqrt{2}$
vi. $-5\frac{1}{3}$	F. $-\frac{1}{25}$	T. $-5 + \frac{1}{3}$
vii. $1\frac{3}{4}$	G. -9	U. $-\sqrt{16}$
viii. 20%	H. -3	V. $\frac{1}{\sqrt{16}}$
ix. $\sqrt[3]{16}$	I. $-\frac{1}{3}$	W. -2^{-4}
	J. 2^{-4}	X. 2^{-4}
	K. -2^{-4}	Y. $16^{-\frac{1}{4}}$
	L. 5	Z. 25
	M. 9	AA. 1.75
	N. $-5 - \frac{1}{3}$	BB. 1.75%


4. Fill the empty columns below and then evaluate the following. Please make sure you do not leave any negative exponents in your answer.

Problem	Base	Exponent	Write in English words how you would read the problem out loud	Expanded form	Evaluate
a. 2^{-3}					
b. $(-3)^{-2}$					
c. -3^{-2}					
d.			Negative of 4 to the second power		
e. $\sqrt{9}$					

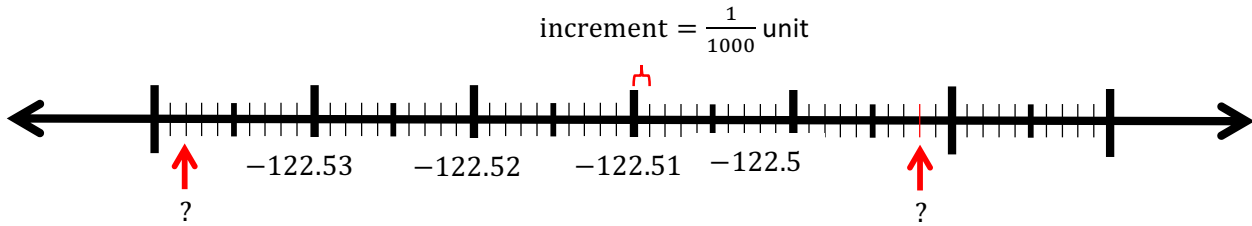
5. Simplify the algebraic expressions below. Assume all variables are positive real numbers. Do not leave any negative exponents in your final answers.

- $(x^2)^3$
- x^3x^5
- $\frac{x^8}{x^3}$
- $(x^3y^{-2})^3(x^{-2})^4$
- $\sqrt{9x^6y^{10}}$
- $\sqrt{12x^5y^8}$

6. Fill in the table below.

Decimal Number	Percentage	Fraction	Fraction in Lowest Terms	Visual Representation
2				
		$\frac{2}{5}$		
				

7. Label the red tick marks below.



8. Plot the numbers in the parts a and b below on a number line so that each number has its own tick mark.

a. $-\frac{4}{5}, \frac{2}{5}, \frac{7}{5}$

b. $-\frac{4\sqrt{3}}{5}, \frac{2\sqrt{3}}{5}, \frac{7\sqrt{3}}{5}$

c. What is the similarity and difference between parts a and b?

9. Perform the following operations where asked, and compare the parts with each other where asked for.

a. $4\frac{2}{5} + 1\frac{4}{5}$

<p>b. $\frac{3}{28} + \frac{5}{28}$</p>	<p>c. $\frac{3}{2x+8} + \frac{5}{2x+8}$</p>
<p>d. What is the similarity and differences between parts b and c?</p>	
<p>e. $(7a + 3b) + (2a + 5b)$</p>	<p>$(7\sqrt{a} + 3\sqrt[3]{b}) + (2\sqrt{a} + 5\sqrt[3]{b})$</p>

f. What is the similarity and differences between parts e and f?

g. $(4x^3 + 6x^2 + 7x + 12) + (5x^6 + 3x^4 + 7x^3 + 10x + 21)$

h. $5\sqrt[3]{2a^5} + 7ab^2\sqrt[5]{b^2} + 8\sqrt[3]{54a^2} + 6\sqrt[5]{b^{12}}$

i. 3.4×4.5	j. $(3x + 4)(4x + 5)$
k. What is the similarity and differences between parts i, and j?	

l. $\frac{(x+3)}{(x+4)} + \frac{(5x-2)}{(2x+1)}$

10. Draw a strip diagram to visually compute 20% of 420.

11. Convert each written description into an algebraic expression. Use appropriate variables when necessary.

a. Rose is four years older than Adam is. Express Rose's age in terms of Adam's age.

b. The price of a car was reduced 12% for an end of year sale. Express the sale price of the car in terms of the regular price P .