Last Name: _____ Date: _____

First Name: _____ Grade 9

Term 1 Practice Test 3

Exponents

1) Simplify the following expressions (no decimals).

a)	$\frac{1}{3}x^3 \cdot \frac{1}{6}x^2 =$ _____	b)	$\frac{4}{5}x^2 \cdot \frac{7}{8}x^3 =$ _____
c)	$-5x^2 \cdot -3x^9 =$ _____	d)	$4x^5 \cdot 9x^{-3} =$ _____
e)	$x^{-3} \cdot x^{-2} =$ _____	f)	$17x^4 \cdot 16x^8 =$ _____
g)	$11x^5(-2x^4) =$ _____	h)	$7x^{-9}(8x^{-2}) =$ _____
i)	$(6x)(6y^3) =$ _____	j)	$(4x^{-5})(-4x^6) =$ _____
k)	$56x^5 \div 7x^3 =$ _____	l)	$64x^3 \div 4x^{-3} =$ _____
m)	$125x^8 \div 5x^{-2} =$ _____	n)	$72x^5 \div 9x^{19} =$ _____
o)	$24x^{-3} \div 8x^{-5} =$ _____	p)	$15x^{-2} \div 3x^{12} =$ _____
q)	$35x^7 \div 5x^{-3} =$ _____	r)	$28x^{-1} \div 4x^{-12} =$ _____
s)	$\frac{48x^{-5}}{4x^2} =$ _____	t)	$\frac{2x^5}{8x^{-2}} =$ _____

2) Write 3 irrational numbers without using decimals.

Answer: _____, _____, _____

3) TRUE or FALSE. Are all of the following numbers natural numbers? $\sqrt{169}, 19, \frac{24}{3}, 39$

Answer: _____

4) Write each of the following as a power of 10.

a. 100 000 = _____ b. 0.001 = _____

5) Simplify the following expressions (all exponents must be positive).

a) $(x^{51}y)^3 =$

b) $(4x^9)^2 =$

c) $(6x^{-5}y^{-6})^2 =$

d) $(2x^7y^{-6})^3 =$

e) $\left(\frac{3x}{4}\right)^3 =$

f) $\left(\frac{5x^{-2}}{c^7}\right)^2 =$

g) $(8x^9)^{-2} =$

h) $\left(\frac{3b^5f^8}{x^{13}y^{-2}}\right)^2 =$

i) $\left(\frac{4x}{9z}\right)^{-3} =$

6) Calculate (no decimals).

a)	$-2^2 =$ _____	b)	$(-2)^2 =$ _____
c)	$6^{-10} \cdot 6^8 \cdot 6 =$ _____	d)	$7^5 \cdot 7^{-3} =$ _____
e)	$(5^2)^{-3} =$ _____	f)	$\left(\frac{4}{7}\right)^{-3} =$ _____
g)	$4^{-2} \cdot 4^{-5} =$ _____	h)	$(2^3 \cdot 2^2) =$ _____
i)	$\left(\frac{7^2}{5}\right)^2 =$ _____	j)	$\left(\frac{4^{-2}}{9^{-1}}\right)^2 =$ _____

7) Solve for the unknown variables (no decimals).

a) $5x - 13 = x - 72$	b) $-4 - 18x = 22 - 5x$
Answer:_____	Answer:_____

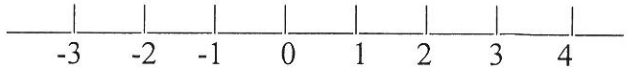
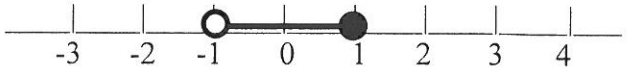
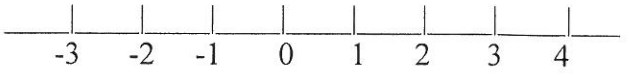
8) Write the following in exponential form and in standard form.

a)	$\sqrt[2]{400} =$ _____ $=$ _____
b)	$\sqrt[3]{27} =$ _____ $=$ _____
c)	$\sqrt[2]{144} =$ _____ $=$ _____

9) Determine if the following statements are **true** or **false**. The entire word must be written.

a. $3 \in \mathbb{Z}$	b. $-\frac{5}{4} \in \mathbb{Q}'$
c. $\mathbb{R} \subseteq \mathbb{Q}$	d. $\sqrt[3]{55} \epsilon \mathbb{Q}'$

10) Complete the following chart.

(a)	$-2 \leq x < 0$		
(b)			
(c)			$]-\infty, 2[$