

SHARP

Worksheet 26: Revision Term 1

Grade 9 Mathematics

1. Complete the table by ticking the correct columns for each number

Number	R	R'	Q	Q'	Z	N	N _o
0							
π							
0.56							
8							
$\sqrt{-2}$							
$\sqrt[3]{-8}$							
$\sqrt{3}$							
$\frac{14}{0}$							
-3							
4.8							

2. Give the prime factors of these numbers (use either the ladder or tree method).

a) 804 b) 312 c) 378 d) 846

3. Simplify the following without using a calculator

a) $-4 \times (8 - (-3)) + 7$

b) $\frac{3}{4} + 5\frac{2}{7} - \frac{28}{36} \div 4\frac{2}{9}$

c) $0.03 \div \frac{9}{5}$

d) $7^2 + (-8)^2 - \sqrt[3]{-\frac{64}{27}}$

e) $\sqrt{\frac{9}{25}} + \left(\frac{7}{10}\right)^2 - \left(\frac{1}{5}\right)^3$

f) $\frac{-42}{7} + 8 \times (5 + (-7))$

g) $\sqrt{0.25} - (0.3)^3$

h) $\frac{200}{87} \div 2\frac{2}{9} - 1\frac{3}{7} \times 0.42$

i) $(-1)^3 \times (-1)^2 + 1$

j) $0.54 \div 0.0009$



4. Complete the table by filling in the missing values. Remember to give your fractions in the simplest form.

Common Fraction	Decimal Fraction	Percentage
$\frac{7}{10}$		
	0.74	
		31%
$\frac{3}{2}$		
	0.929	
		13.6%
$\frac{2}{7}$		
	0.25	
		98%
$\frac{9}{11}$		

5. Simplify the following; leave all exponents in positive form.

a) $\frac{(a^2b^3)^2}{a^4b^3} \times \left(\frac{a^2}{b^3}\right)^{-1}$

b) $\frac{27^a + 9^a}{3^{3a}}$

c) $\frac{8m^2n^3}{(3mn^2)^3} \div \frac{(4m^2)^2}{9m^5n^0}$

d) $\left(\frac{x}{y} + \frac{1}{x}\right)^{-2}$

e) $\frac{80^p + 96^p}{48^p}$

6. Write the following numbers in the correct scientific notation

a) 0.00096

b) 32 760 000

c) 0.0000067

d) 3 699 100

e) 0.00004588

f) 51 272



7. Study the following patterns carefully, then for each pattern do the following:

- i) Find the next 3 terms
- ii) Write down in words how the pattern works.
- iii) Find the 10th term of the pattern.
- iv) Write an algebraic expression for the pattern.

- a) 1, 4, 9, 16.... b) 2, 8, 18, 32...
- c) 7 11 15 19... d) 1 2 4 8...
- e) 8 15 22 29

8. Look at the following tables for each of the functions given below and complete the tables.

a)

x	-4	-2	-1	0	1	2	7		m
y		13	8	3	-2			-47	

b)

x	-4	-2	-1	0	1	2	6		m
y		-15	-11	-7	-3			49	

c)

x		-2	-1	0	1	3	5		m
y	$\frac{1}{27}$	$\frac{1}{9}$	$\frac{1}{3}$	1	3			59 049	

d)

x		-2	-1	0	1	4	8		m
y	-56	-20	-11	-2	7			133	

e)

x	-9	-2	-1	0	1	5	12		m
y		1	5	9	13			81	

9. If $a = 3, b = -5, c = 10$ and $d = -2$, find the value of the following expressions:

a) $\left(\frac{c}{bd} + a^2\right) \div (-c)$

b) $c^2d^2 - a^2b^2 + (cd - ab)$

c) $abc + bcd - acd$

d) $\frac{ac}{b} - \frac{a^2d}{c-d^2}$

e) $7c - 3a^2 + 5b^3 - 8d^4$

10. Given the expression: $10x - 14x^5 + 2x^3 - 8x^2 + 11$

a) How many terms are in the expression?

b) What is the degree of the exponent?

c) What is the coefficient of the term with the highest exponent?

d) What is the constant term?

e) If $x = -3$, what is the value of the expression?

11. Simplify the following expressions

a) $a^2(3ab - 7b) - 4b(2a^3 - 4a^2)$

b) $(x + 2y)^2 - (x + 2y)(x - 2y)$

c) $4m(8m^2 - m + 6) - 6m(2m^2 + 9m)$

d) $\frac{40x^4 - 48x^3 + 32x^2}{8x^2} - 3x(9x + 1)$

e) $\sqrt{100x^4 - 64x^4}$

f) $9p^2(5p^2 + 8p - 4) - (7p^2 - 5)^2$

g) $4pq^2(7p^2q - 6pq + 5q^2) - (3pq)^3$

h) $(4p - 5q)(2q - 7p) + (6p - 7q)(-8p)$

i) $\frac{1}{9x^3}(63x^5 - 45x^4 - 72x^3) + 14x^2$

j) $\sqrt[3]{(5x^3)^2 + (10x^3)^2}$

12. Solve for x in the following equations:

a) $3x + 7 = -2$

b) $4(x + 9) = 3(2x - 7)$

c) $\frac{x}{7} + 3 = 9$

d) $-\frac{48}{x} + 7 = 1$

e) $7x - 8 = 2(5x + 10)$

f) $8x + 12 = -4$

g) $\frac{27}{x} + 12 = 3$

h) $\frac{x}{9} - 5 = 3(x + 4)$

i) $\frac{5x}{15} + 3 = 2$

j) $\frac{3x+2}{7} - 9 = 3$

