



"supporting schooling for excellence"

NAME: _____

GRADE: _____



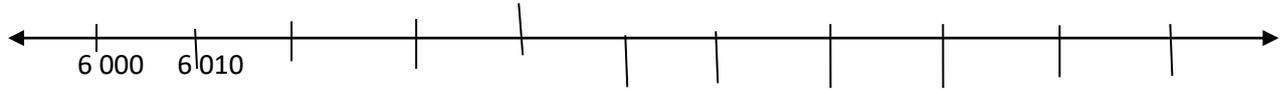
TERM: _____
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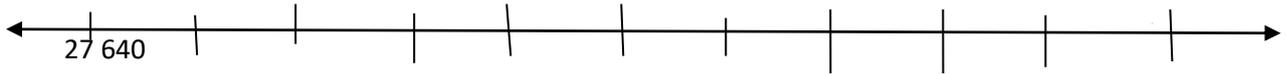
SCHOOL: _____

Whole Numbers

1. Study the number line below and complete it by adding 10 each time. The first two numbers have been filled in for you.

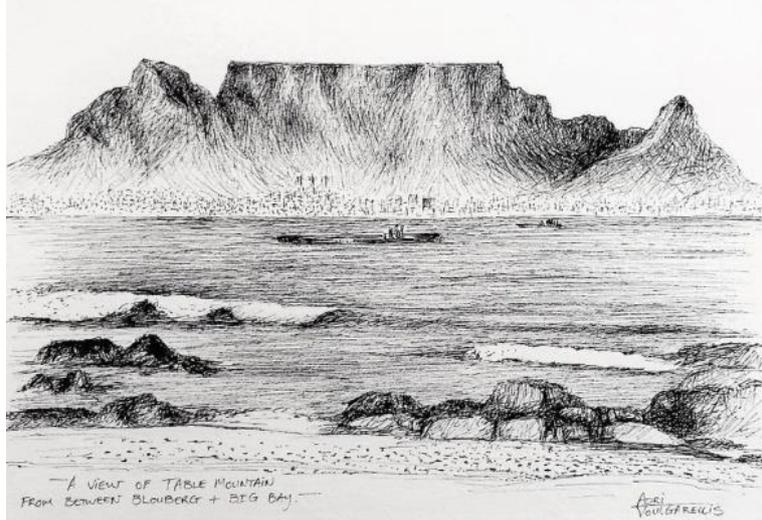


2. Fill in, on the number line below, the number which is halfway between 27 640 and 27 650.



3. Here is a chart showing the heights of some of the mountains in South Africa. Look at it and then answer the questions below.

Mountain	Height (m)	Range	Where found
Thabana Ntlenyana	3 482 m	Drakensberg	Lesotho
Table Mountain	1 084 m	Cape Fold Mountain Range	Western Cape
Thaba Putsoa	3 455 m	Drakensberg	Lesotho
Formosa Peak	1 675 m	Tsitsikamma	Eastern Cape
Makheka	3 463 m	Drakensberg	Lesotho



a) Write the heights of the mountains from the highest to the lowest.

.....

b) The highest mountain in South Africa is shown on the chart. Which one is it?

.....

c) What is the difference between the highest and lowest mountains shown on the chart?

d) What is the difference in height between Formosa Peak and Table Mountain?

e) What mountain is shown in the picture and in which city is it found?

.....

4. Make the largest possible number possible number with the digits 4, 8, 0, 2, 3.

5. What is the next number after 9 999?

6. Complete this table by rounding off each number as needed.

Number	Rounded to the nearest				
	5	10	100	1 000	10 000
32					
1 327					
23 502					
18 679					
568 135					

7. Write out the first 10 multiples of 7.

.....

8. **Example:** The factor pairs of 20 are 1 and 20, 2 and 10 and 5 and 4.

Find all the factors of 28 by writing them out as factor pairs.

9. From this list: **2, 3, 4, 5, 6, 7, 8, 9, 10**, pick out:

a) The even numbers

b) The square numbers

c) The cube numbers

- d) The odd numbers
- e) The triangular numbers

10. Write down:

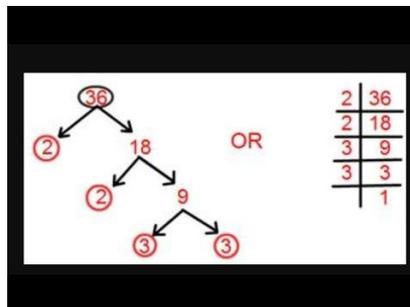
- a) All the factors of 8
- b) All the factors of 12
- c) The highest common factor or HCF of 8 and 12
- d) The first 5 multiples of 6.
- e) The first 5 multiples of 8.
- f) The lowest common multiple of 6 and 8 is.
- g) The prime factors of 12.
- h) The first 10 prime numbers.
- i) i) 16 as a multiple of its prime factors.
 ii) Now write the answer in exponential notation.
- j) The only even prime number.

11. Find the **highest common factor** of:

- a) 45 and 60
- b) 16 and 22
- c) 25 and 45
- d) 28 and 42
- e) 27 and 36
- f) 36 and 96

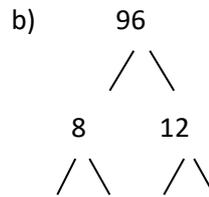
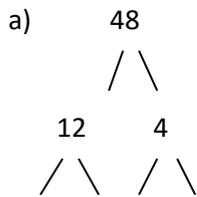


Example: Use a factor tree or division ladder to show 36 as a product of its prime numbers and then write it in exponential form:



$36 = 2 \times 2 \times 3 \times 3$ written in exponential form $36 = 2^2 \times 3^2$

12. Complete the following factor trees and then show each number as a product of its **prime numbers** and write it in **exponential form**:



a) $48 = \dots\dots\dots$

b) $96 = \dots\dots\dots$

13. Use factor trees or division ladders to find the following numbers as products of their **prime factors** and then write them in **exponential form**:

a) 108

b) 80

14. Find the highest **common factor** of:

a) 18 and 36

b) 12 and 20

15. Find the lowest **common multiple** of:

a) 6 and 10

b) 4 and 7

c) 5 and 8

d) 9 and 12

e) 6 and 12

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Properties of numbers

1. Simplify the following remembering the order of operations rules and the properties of numbers:

a) $50 \times (70 + 30) \dots\dots\dots$

b) $50 \times 70 + 50 \times 30 \dots\dots\dots$

c) $50 \times (70 - 30) \dots\dots\dots$

d) $50 \times 70 - 50 \times 3 \dots\dots\dots$

e) $(8 + 12) - 5 \dots\dots\dots$

- f) $64 - (30 + 12)$
- g) $(8 + 12) + (6 + 4)$
- h) $(5 + 7) \times 3$
- i) $18 \times (42 \div 7)$
- j) $(62 + 10) \div (36 \div 4)$
- k) $12 + 13 + 5 - 7$
- l) $64 - 12 - 6 - 4$
- m) $8 \times 2 \times 2 \times 3$

2. Insert brackets to make the following statements true.

- a) $16 + 9 \times 0 = 0$
- b) $14 + 8 - 6 \times 3 = 20$
- c) $15 - 7 \times 9 = 72$
- d) $24 + 12 \div 4 + 5 = 4$
- e) $72 \div 12 - 3 + 2 = 10$



Problem Solving with Whole Numbers

1. Find the sum of 36 metres, 53 metres and 21 metres.

2. Add 68 kg, 125 kg and 32 kg.

3. Find the price of 75 oranges at 15 cents each.

4. How many books are there in 120 crates, each containing 36 books?

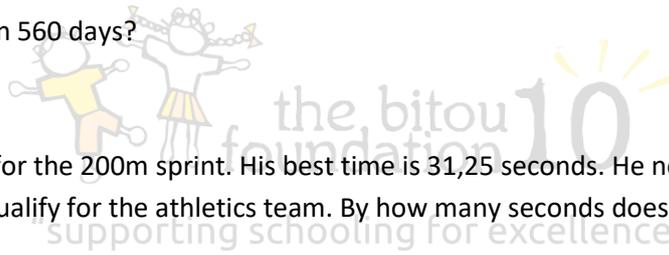
5. How many months are there in 37 years?

6. The product of a number multiplied by itself is 400. What is the number?

7. Find the total number of days in the months of May, June and July.

8. Subtract the sum of 235 and 180 from 768.

9. How many weeks in 560 days?



10. Thabo is training for the 200m sprint. His best time is 31,25 seconds. He needs to finish in 27 seconds in order to qualify for the athletics team. By how many seconds does he need to improve his time by to qualify?

Problem Solving Ratio and Rate

Example: There are 5 girls to 15 boys in the class. It is written as 5:15.

1. There are six dogs and two cats. What is the ratio of **cats** to **dogs**:

2. Of the 50 learners in Funeka's class 22 are girls. What is the ratio of **girls** to **boys**?

.....

3. Funeka's mum paid R600 for 30 m of the material which she used to make new curtains for her bedroom. How much did the material cost per metre?

4. If Funeka bought 10 slabs of chocolate for R120, what did one slab cost?

5. If you travelled 330 km in 3 hours what was your average speed?

6. Larry has 4 sheep, 2 cows and 5 goats in his field.

- What is the ratio of sheep to cows? Simplify if necessary..
- What proportion of the animals in the field are goats?

7. During a period of very heavy rain, the water level in a certain river increases at a rate of 8 cm each hour. If it continues like this, by how much will the water level increase in 24 hours? Convert your answer to m.

8. In a certain food factory, two machines are used to produce tins of baked beans. Machine A produces at a rate of 800 tins per hour, and machine B produces at a rate of 2 400 tins per hour.

- Complete the following table, to show how many tins of beans will be produced at the two machines, in different periods of time and then answer the questions below:

Hours	Machine A	Machine B
1	800	2 400
2	1 600	4 800
3		
5		
8		

- How much faster is machine B than machine A?
- How many tins will be produced at machine B in the time that it takes machine A to produce 30 tins?
- How many tins will be produced at machine B in the time that it takes machine A to produce 200 tins?
- How many tins will be produced at machine B in the time that it takes machine A to produce 1 tin?

9. R240 will be divided between David and Sally in the ratio 3 : 5. This means Sally gets R5 for every R3 David gets. How much will David and Sally each get in total?

10. How much will each person get, if R14 400 is shared between two people in each of the following ways?

- In the ratio 1 : 3

- b. In the ratio 5 : 7

Exponents



1. Complete: 8^2 is read as and the 8 is the and the 2 is the exponent or

2. • •• •••
 •• ••••
 ••••

- a) Why are these called square numbers?
 b) Extend this pattern by drawing two more terms.
 c) What is the 7th square number?

3. Write the following as ordinary numerals:

- a) $(7 \times 10^2) + (6 \times 10^1) + (3 + 10^0) =$
 b) $(3 \times 10^3) + (4 \times 10^2) + (7 \times 10^1) + (2 \times 10^0) =$
 c) $(5 \times 10^5) + (4 \times 10^4) + (0 \times 10^3) + (6 \times 10^2) + (3 \times 10^1) + (1 \times 10^0) =$

4. Write the following in exponential notation:

- a) 893 =
 b) 3 967 =
 c) 93 406 =

5. Complete this table:

Index form	Base	Index	Write as a numeral
3^2			
2^3			
6^2			
10^5			
5^2			
0^{25}			

6. Instead of saying "10 times 10 times 10", we may say "10 cubed" and we may write 10^3 . What number is 2^3 or 2 cubed?

7. Decrease the product of 12 and 3 by 3 squared.

8. Decrease the sum of 12 and 4^2 by 3^2

9.

$$\text{If } 1^2 = 1 \times 1 = 1 \text{ then } \sqrt{1} = 1$$

$$1^3 = 1 \times 1 \times 1 = 1 \text{ then } \sqrt[3]{1} = 1$$

$$2^2 = 2 \times 2 = 4 \text{ then } \sqrt{4} = 2$$

$$2^3 = 2 \times 2 \times 2 = 8 \text{ then } \sqrt[3]{8} = 2$$

Now complete:

a) $\sqrt{16} = \dots$ b) $\sqrt{49} = \dots$ c) $\sqrt{100} = \dots$ d) $\sqrt[3]{27} = \dots$ e) $\sqrt[3]{125} = \dots$ f) $\sqrt[3]{8} = \dots$

10. If $7^3 = 343$ then find $\sqrt[3]{343}$

11. Show which is larger. 4^2 or 2^2 ?

12. Write 14 to the power of 2 in exponential notation.

13. Complete this list of square numbers: 1, ..., 9, ..., , ..., , 36, , 64, , , 121.

14. Write the symbol for cubed root.

15. The prime factors of 24 are $2 \times 2 \times 2 \times 3 = 24$. Write in exponential notation.

16. Calculate the following remembering the order of operations rules:

a) $20 - 3^2 = \dots$

b) $3^2 + 7 \times 2 = \dots$

c) $6 + 4 - 3^3 = \dots$

d) $(32 \div 8) + 16 = \dots$

e) $\frac{\sqrt{16}}{2} = \dots$

f) $\frac{1}{4}$ of $84 + 5^2 = \dots$

g) $2^3 - (8 \div 2) = \dots$

h) $(13 - 4) \times 3^2 = \dots$

i) $\frac{\sqrt{100}}{5} - 2 = \dots$

j) $(6 \times 8) - 3^3 = \dots$

k) $(7 - 4)^3 = \dots$

l) $\sqrt{16 + 9} = \dots\dots\dots$

17. Find the value of each of the following:

a) $2^\circ = \dots$

b) $2' = \dots$

c) $2^2 = \dots$

d) $2^3 = \dots$

e) $2^4 = \dots$

f) $2^5 = \dots$

18. Which of these is a square number? 120, 144, 40 or 8?

19. Which of these is a cube number? 1, 25, 3 or 9?

Common Fractions, Decimal Fractions, Percentages

$$\frac{2}{5} = 0,4 = 40\%$$

Common Fractions "supporting schooling for excellence"

1. $\frac{7}{8} = \frac{\quad}{56}$

2. Simplify $\frac{9}{12}$

3. Simplify $7\frac{8}{12}$

4. Write $4\frac{7}{9}$ as an improper fraction.

5. Write $\frac{37}{4}$ as a mixed number.

6. Add $\frac{3}{10} + \frac{4}{10}$

7. Subtract $\frac{39}{70} - \frac{9}{70}$

8. Work out $\frac{2}{3} + \frac{5}{7}$

9. Find $\frac{8}{9} - \frac{1}{2}$

Evaluate the following:

10. $\frac{3}{7} \times \frac{5}{7}$

11. $\frac{8}{21} \times \frac{7}{16}$

12. $\frac{2}{3}$ of an hour

13. $\frac{1}{5}$ of a kilogram

14. $\frac{1}{4}$ of R400

Problem solving with fractions

1. Find the sum of $\frac{2}{5}$, $\frac{3}{4}$ and $\frac{1}{10}$

2. Subtract the difference between $\frac{1}{2}$ and $\frac{1}{3}$ from the sum of $\frac{1}{2}$ and $\frac{1}{3}$

3. In a school of 800 students, $\frac{1}{5}$ of the students have brown eyes. How many do not have brown eyes?

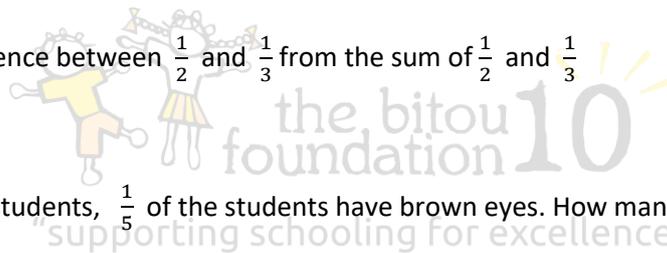
4. A rectangle has a length of $3\frac{3}{4}$ cm and a width of $1\frac{1}{4}$ cm. Find the perimeter of the rectangle.

5. A car tank when $\frac{3}{4}$ full contains 45 litres of petrol. What is the capacity of the tank?

6. Lindiwe bought $3\frac{2}{5}$ kg of apples on one day and $4\frac{3}{4}$ kg the next day. How many kg of apples did she buy in all?

7. Which of the following numbers is the largest? $\frac{2}{3}$, $\frac{3}{5}$ or $\frac{7}{10}$

8. An aeroplane flew 1200 km in $2\frac{3}{4}$ hours. What was its average speed?



9. How many pieces of wood each $1\frac{1}{3}$ metres long can be cut from a board 8 metres long?
10. Thandiwe works for $3\frac{1}{2}$ hours on Saturday and $5\frac{3}{4}$ hours on Sunday. Find the total number of hours that he works over the weekend.

Decimals

- Express as a decimal $\frac{9}{10} + \frac{5}{100}$
- What is the value of the 6 in 3,562?
- Express $\frac{2}{1000}$ as a decimal.
- Change $64\frac{3}{10}$ to a decimal.
- Write 0,39 as a fraction.
- Express 3.5 as a fraction in its lowest form.
- Find the sum of 4,9 and 3,008.
- Find the answer to $5,2 - 3,05$
- Multiply 0,3 by 1,2
- Find $6,38 \times 100$
- Insert the sign $<$, $=$ or $>$:
0,2 0,12
- Arrange in ascending order, i.e. the smallest first.
3,01; 3,1; 3,001
- Write $\frac{4}{5}$ as a decimal.
- Round off 8,7153 to two decimal places.
- Buhle earns R20,80 an hour. How much does she earn in $3\frac{1}{2}$ hours?

Problem Solving and Percentages

- Express 800% as a fraction.

2. Find 25% of R900.

3. 12 marks out of 48 is what as a percentage?

4. Write $\frac{5}{12}$ as a percentage correct to 2 decimal places.

5. Write $\frac{4}{5}$ as a percentage.

6. Write 0,86 as a percentage.



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7. Change 88 % to a fraction.

8. What percentage is 9 of 45?

9. Find 5 % of 3 500 m.

10. The price of a car is R 35 000 and after 1 year it decreases by 20 %. Find the value now.

11. What would Sam pay for a CD player that sells for R550 but is discounted by 15%?

12. Out of 1 200 students, 60% swim. How many swim?

13. If 64 % of students are present, what percentage is absent?

14. Out of 60 students 20% are sick. How many are **not** sick?

15. What is 20% of 400?

Equivalent forms

Complete the following table converting fractions, decimals and percentages:

Fraction	Decimal	Percentage
$\frac{15}{100}$	0.15	15%
$\frac{73}{100}$		
$\frac{100}{4}$		
$\frac{100}{100}$		
		39%
	0,77	
$\frac{50}{100}$		
		80%
$\frac{26}{100}$		
		$66\frac{2}{3}\%$
$\frac{1}{100}$		
$\frac{1}{3}$		
$\frac{3}{4}$		
		20%