Grade 7 | Mental Maths | Term 4

Question 1

Fill in the symbol $<$, $>$ or $=$.

a) -3 ..... -5

b) 3 more than -7 ..... -4

c) -9 0

d) 5 less than 1 ..... -8

e) $-9 + 10$ 1

f) $5 - 7$ ..... -3

g) $-8 - 1$ ..... $8 - 1$

Total ___ /7

Question 2

Fill in the next 2 numbers and the rule that you used.

a) 1 ; 6 ; 11 ; ..... Rule: .....

b) 13 ; 26 ; 52 ; ..... Rule: .....

c) 66 ; 60 ; 54 ; ..... Rule: .....

d) 256 ; 64 ; 16 ; ..... Rule: .....

e) 8 ; 6,9 ; 5,8 ; ..... Rule: .....

f) $\frac{1}{32}$; $\frac{1}{16}$; $\frac{1}{8}$; $\frac{1}{4}$; ..... Rule: .....

g) $3\frac{6}{7}$; $3\frac{3}{7}$; 3 ; ..... Rule: .....

Total ___ /14

Question 3

True or False?

If false, give the correct answer.

a) A list of questions used in a survey is called data.
.....

b) The information that has been gathered in a survey is called data. .....

c) A sample is bigger than a population. .....
.....
.....

d) The mean $= \frac{\text{sum of the scores}}{\text{no. of scores}}$ .....

e) The range is the middlemost score in an ordered set of data.
.....

f) The mode is score that occurs most in a data set. .....

Total ___ /6

Question 4

Arrange the following integers in ascending order.

a) -3 , 9 , 0 , -8 .....

b) 13 , 1 , -20 , -75 .....

c) -5 , 5 , 0 , -1 .....

d) -33 , 33 , 3 , -3 .....

Arrange the following integers in descending order.

a) -3 , 9 , 0 , -8 .....

b) 11 , -4 , 2 , -14 .....

c) 2 , 9 , -61 , -4 .....

d) -43 , 99 , 7 , -99 .....

Total ___ /8

Question 5

Complete each sequence:

a) 1 ; 8 ; 27 ; 64 ; .....

b) 1 ; 2 ; 2 ; 4 ; 3 ; 6 ; ..... ; .....

c) 64 ; 49 ; 36 ; 25 ; ..... ; ..... ; .....

d) 1 ; 1 ; 2 ; 3 ; 5 ; ..... ; ..... ; .....

e) 5 ; 4 ; 10 ; 3 ; 15 ; ..... ; .....

f) 2,4 ; 1,2 ; 0,6 ; ..... ; .....

g) 1 ; 3 ; 4 ; 7 ; ..... ; ..... ; .....

Total ___ /7

Question 6

Write in short form, where possible:

a) $15 \times (-y) =$ .....

b) $7 \times a \times 3 =$ .....

c) $(-4) \times (-b) =$ .....

d) $-8 + 5 - p =$ .....

e) $5 \times y \times z =$ .....

f) $-y \times 6 + 10 =$ .....

g) $7 + q - p =$ .....

Total ___ /7

Question 7

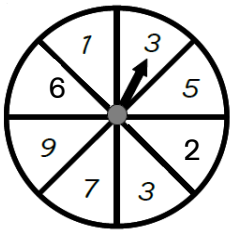
Fill in the missing values in each flow diagram.

a)	7 --→ 8 --→	×11	--→ --→
b)	0,3 --→ 0,8 --→		--→ 1,9 --→ 2,4
c)	--→ 0,25 --→	×4	--→ 2 --→
d)	--→ −10 --→	−2	--→ −8 --→
e)	0,2 --→ --→	×0,3	--→ --→ 0,18
f)	7 --→ 5 --→	×(−3) → +4	--→ --→
g)	0,06 --→ 0,7 --→		--→ 0,006 --→ 0,07
h)	$\frac{1}{2}$ --→ $\frac{1}{3}$ --→	$-\frac{1}{6}$	--→ --→

Total ___ /14

Question 8

Using the number spinner given, what is the probability of spinning a/an:



a) 3? .....

b) multiple of 1?

.....

c) odd number? .....

d) even number? .....

e) composite number?

.....

f)* factor of 6? .....

g) 10? .....

Total ___ /7

Question 9

Fill in the missing values in each table below:

a)	position	1	2	3	4	n	10
	value	3	6	9			
b)	position	1	2	3	4	n	8
	value	6	6^2	6^3			
c)	position	1	2	3	4	n	10
	value	0,5	1	1,5			
d)	position	1	2	3	4	n	12
	value	0	3	8			

Total ___ /12

Question 10

Determine the mode, median, mean and range for each data set.

a) *11 11 5 3 15*

Mode = ...
Median = ...
Mean = ...
Range = ...

b) *1 7 21 30 21*

Mode = ...
Median = ...
Mean = ...
Range = ...

Total ___ /8

Question 11

Determine the value of:

a) $10y$ if $y = -12$ .....

b) $-7p$ if $p = 4$ .....

c) $-3x$ if $x = -9$ .....

d) $2xy$ if $x = 7$ and $y = -5$
.....

e) xy if $x = -3$ and $y = -4$
.....

f) $10p - 17$ if $p = 10$
.....

g) $1 + 5a$ if $a = 3$
.....

h) $3z - 4y$ if $z = 10$ and $y = 5$
.....

Total ___ /8

Question 12

Solve each equation for x.

a) $x - 5 = 7$ .....

b) $x + 3 = 10$ .....

c) $x - 2 = -4$ .....

d) $4x = -8$ .....

e) $-5x = -2$ .....

f) $2x - 4 = -2$
.....

g) $9 - 2x = 5$
.....

h) $-3 - 3x = 6$
.....

Total ___ /8

Question 13

Write an algebraic expression for each of the following.

a) 10 is subtracted from x.

.....

b) The sum of 9 and $-p$.

.....

c) y is decreased by 7.

.....

Consider the expression $a - 2 + p$.

a) No. terms = ...

b) No. variables = ...

c) What is the constant? .....

Total ___ /6

Question 14

Use the given rules to complete each table. (answers must be in simplest form)

a)	Rule: c = 2b + 0,5				
b	1	2	3	4	9
c					
b)	Rule: t = 0,03r				
r	1	2	3	4	7
t					
c)	Rule: $t = p^3 - 2$				
p	1	2	3	4	5
t					

Total ___ /15

Question 15

If $a = 6$, $b = 2$, $x = 1$ and $y = 5$, determine the value of:

a) $-3y + 7$ .....

b) $b^2 - 1$ .....

c) $15 \div y$ .....

d) $a^2x^5\,b$ .....

e) $abxy$ .....

f) $4y \div b$ .....

g) $-10a \div 4$

.....

h) $150 \div (x + 7b)$

.....

i) $-y^3 + xy$ .....

j) $2a^2 \div (x + b)$ .....

.....

Total ___ /10

Question 16

Fill in the missing numbers.

a) $3 - (-8) - 5 =$ .....

b) $15 - 20 = -20 +$ .....

c) $8 + (-8)(2) - 5(-4) =$ .....

d) $5 \times (\ldots\ldots) = -15$

e) $(-6)(-8) =$ .....

f) $-1 - 2 - 5 =$ .....$- 2 - 1$

g) $9 - (-7) = 9 +$ .....

h) $-5 \times 7 \times 2 =$ .....

i) $(-9)^2 =$ .....

j) $(\ldots\ldots)^3 = -27$

Total ___ /10

Question 17

Determine the rule for each table.

a)	t	1	2	3
	p	1,4	2,8	4,2
Rule:				
b)	t	1	2	3
	p	2	5	10
Rule:				
c)	t	1	2	3
	p	-2	3	8
Rule:				

Total ___ /3

Question 18

1. The following temperatures were recorded in Sutherland on Monday, Tuesday and Wednesday respectively at 1a.m.:
   3°C , −1°C, −4°C.

a) Which day was the coldest?

.....

b) Which day was the warmest?

.....

c) How much warmer was Monday than Wednesday?

.....

d) The weather forecast shows that Friday's temperature will be 50% colder than Wednesday's temperature. What is the Friday's temperature predicted to be?

.....

Total ___ /4

Question 19

Write an algebraic expression for each word sentence.

a) q bags of rice can be filled in 9 hours. How many bags can be filled per hour?

.....

b) 15kg of beef costs Ry. What is the cost per kg?

.....

c) What is the average speed if $20z$ kilometres is covered in $100b$ hours?

.....

d) The length of a rectangle is $7x$ and its width is $2y$. What is the area of the rectangle?

.....

Total ___ /4

Question 20

Solve each equation for x.

a) $x - 4 = 7$ .....

b) $x + 3 = 15$ .....

c) $7 - x = 10$ .....

.....

d) $-4x = -16$ .....

e) $\frac{x}{3} = -3$ .....

f) $\frac{36}{x} = -12$ .....

Total ___ /6

Question 21

Fill in the missing values in each table below:

a)	position	1	2	3	4	n	12
	value	-6	-12	-18			
b)	position	1	2	3	4	n	20
	value	-7	-6	-5			
c)	position	1	2	3	4	n	10
	value	-7	-14	-21			

Total ___ /9

Question 22

Complete the table below.

	Tally marks	Frequency
a)		5
b)	|	
c)		7
d)	𝍸 𝍸	
e)	| |	

Total ___ /5

Question 23

Complete:

1. There are some blue, green and white balls in a bag containing 20 balls in total.

a) I have a 20% chance of picking a green ball.
The no. of green balls =
.....

b) How many blue balls are in the bag if P(blue) $= \frac{3}{4}$?
No. of blue balls = ...
.....

c) What is the probability of drawing a white ball?
.....
.....
.....

Total ___ /3

Question 24

Solve each equation for x.

a) $\frac{x}{4} = 2$ .....

b) $\frac{x}{6} = 4$ .....

c) $\frac{x}{5} = -10$ .....

d) $\frac{x}{5} - 5 = -10$
.....

e) $\frac{x}{3} + 7 = 19$
.....

f) $\frac{x}{7} + 10 = 12$
.....

g) $\frac{x}{4} - 7 = 13$
.....

Total ___ /7

Question 25

a) $1 + (-2) =$ .....

b) $6 + 5 =$ .....

c) $-6 - (-10) =$ .....

d) $-10 + (-5) =$ .....

e) $-8 + (-6) =$ .....

f) $3 - (-3) =$ .....

g) $3 - 10 =$ .....

h) $7 - (-5) =$ .....

Total ___ /8

Question 26

a) $-6 \times (-5) =$ .....

b) $-6 \times 0 =$ .....

c) $9 \times 5 =$ .....

d) $-6 \times 3 =$ .....

e) $(-2)(10) =$ .....

f) $1 \times (-9) =$ .....

g) $(-7)(-3) + 1 =$ .....

h) $-4(-5) =$ .....

Total ___ /8

Question 27

a) $7{,}9 - 6{,}4 =$ .....

b) $9{,}1 - 3{,}8 =$ .....

c) $1{,}9 + 0{,}9 =$ .....

d) $8{,}2 + 10{,}9 =$ .....

e) $8{,}9 - 0{,}2 =$ .....

f) $6{,}7 + 8{,}5 =$ .....

g) $10{,}9 - 0{,}9 =$ .....

h) $3{,}4 - 0{,}1 =$ .....

Total ___ /8

Question 28

Solve each equation for y.

a) $y + 22 = 15$ .....

b) $5 - y = -20$ .....

c) $17y = 340$ .....

d) $0{,}5y + 30 = 100$ .....

e) $y - 200 = 1\,200$ .....

f) $10 - 3y = 1$ .....

g) $2y + 3y + 6y = 132$
.....

Total ___ /7

Question 29

Fill in the next 2 numbers and the rule that you used.

a) 0,3 ; 0,6 ; 1,2 ; ..... Rule: .....

b) 9,6 ; 9,2 ; 8,8 ; ..... Rule: .....

c) 1,4 ; 2,5 ; 3,6 ; ..... Rule: .....

d) 891 ; 297 ; 99 ; ..... Rule: .....

e) 8 ; 10,3 ; 12,6 ; ..... Rule: .....

f) 187,5 ; 37,5 ; 7,5 ; ..... Rule: .....

g) 0,2 ; 0,6 ; 1,8 ; ..... Rule: .....

Total ___ /14

Question 30

a) $-3 + 0 =$ .....

b) $-5 \times (-8) =$ .....

c) $-7 + 2 =$ .....

d) $-4 - 10 =$ .....

e) $9 - 5 =$ .....

f) $4 - (-7) =$ .....

g) $8 \times (-3) =$ .....

h) $-8 + 3 =$ .....

Total ___ /8

Question 31

Fill in the next 2 numbers of each number sequence.

a) 2 ; −2 ; −6 ; .....

b) −50 ; −30 ; .....

c) −1 ; −5 ; −25 ; .....

d) 325 ; 225 ; 125 ; .....

*e) −8 ; −4 ; −2 ; .....

f) −111 ; −110 ; −109 ; .....

g) −3; −6 ; −12; .....

Total ___ /7

Question 32

a) $9,4 - 8,1 =$ .....

b) $7,4 + 5,6 =$ .....

c) $8,3 \times 3 =$ .....

d) $8,4 \times 7 =$ .....

e) $10,3 - 5,4 =$ .....

f) $1,9 \times 8 =$ .....

g) $7,3 + 0,6 =$ .....

h) $0,8 + 10,9 =$ .....

Total ___ /8