MEMO

Moderated
12/10/2019

Time: 1½ hrs.

Marks: 60

Examiner: Mr. R. Ramawthar

Moderator: Mr. K.H.MOODLEY

NAME: _____

GRADE: 8 _____

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INSTRUCTIONS TO CANDIDATES

1. Answer all questions.

2. Number your answers correctly.

3. Write neatly and legibly.

****

QUESTION ONE

Circle the letter of the correct answer.

1.1 If a and b are whole numbers, which one of the following statement is always true?

a) $a + a = a^2$ b) $a + b = ab$

c) $b^2 + b^2 = b^4$ (d) $a + b = b + a$ (1)

1.2 Complete: $(12 \div 2) + (6 \times 3) - 3 =$

a) 105   b) 27   (c) 21   d) 33   (1)

1.3 The value of $\sqrt[3]{216} =$

a) 108   (b) 6   c) - 6   d) 72   (1)

1.4 $0,16 \times 0,4 =$

(a) 0,064   b) 0,64   c) 0,0064   d) 6,4   (1)

1.5 $(5x)^3 =$

(a) $125x^3$ b) $5x^3$ c) $15x^3$ d) $8x^3$ (1)

1.6 $2^3 \times 3^2 =$

a) 54   b) 10   c) 36   (d) 72   (1)

1.7   The lowest common multiple of 9 and 6 is:-

a) 3   (b) 18   c) 36   d) 54   (1)

1.8   Between parallel lines, co-interior angles are:-

a) complementary   (b) supplementary   c) equal   d) adjacent   (1)

1.9   The angle 181° is ....

a) an acute angle   b) an obtuse angle   (c) a reflex   d) a right angle   (1)

1.10   The rule for the pattern: 2 ; 6 ; 12 ; 20 ....

a) $2n + 4$ (b) $n^2 + n$ c) $n^2 + n + 1$ d) $n^2 - n$ (1)

                                                 [10]

[10]

QUESTION TWO

2.1 The price of petrol is set to increase by 5% next month. If the current fuel price is R9,00 per litre, what will the new petrol price be next month? (3)

$\frac{5}{100} \times \frac{R9,00}{1}$ New Petrol Price = R9,45. ✓✓

= 45c ✓

2.2 Mr Jones buys 48 jackets at R145 each and sells them at R299 each. Calculate the profit he made after selling 48 jackets. (2)

R299 − R145 = R154 ✓   PROFIT = R154 × 48

= R7392 ✓

2.3 Calculate the amount that will be in the bank after 4 years if R2500 is invested at 13 % per annum simple interest. (3)

$S.I = \frac{p \times n \times r}{100}$ Amount = R2500 + R1300 ✓

$= \frac{R2500 \times 4 \times 13}{100}$ = R3800 ✓

= R1300 ✓

2.4 Three friends Ayanda, Jessica and Sharon share R1162 in the ratio of 3 : 4 : 7. How much will each one get? (5)

3 + 4 + 7 = 14. ✓

one part = R1162 ÷ 14 = R83. ✓

Ayanda = 3 × R83 = R249 ✓

Jessica = 4 × R83 = R332 ✓

Sharon = 7 × R83 = R581 ✓

A = P(1 + i·n)
= 2500(1 + 0,13·4)

[13]

QUESTION THREE

Calculate without using a calculator (show calculation steps).

3.1 $-5 - (-3) + (-4 - 6) =$ (2)

$-5 + 3 - 10$ ✓

$= -12$ ✓✓

3.2 $3\frac{2}{3} - \frac{7}{12}$ (write answer as mixed numbers)   (2)

$\frac{11}{3} - \frac{7}{12}$

$= \frac{44 - 7}{12}$ ✓✓

$= \frac{37}{12} \quad = 3\frac{1}{12}$ ✓✓

3.3 $1\frac{2}{3} \times \frac{5}{6}$ (2)

$\frac{5}{3} \times \frac{5}{6}$ ✓

$= \frac{25}{18}$ ✓✓ $\quad = 1\frac{7}{18}$

3.4 $\frac{2}{5} \div \frac{1}{2}$ (2)

$\frac{2}{5} \times \frac{2}{1}$ ✓

$= \frac{4}{5}$ ✓✓

QUESTION FOUR

4,1   Consider the expression: $-8 + 4x^3 - x + 5x^2$

4.1.1   Write the expression in descending powers of x

$4x^3 + 5x^2 - x - 8$ ✓✓   (1)

4.1.2   What is the constant term in the expression?

-8 ✓   (1)

4.1.3   What is the coefficient of x?

-1 ✓✓   (1)

4.1.4   How many terms are in the expression?

4 ✓✓   (1)

4.1.5   What is the degree of the polynomial?

3rd degree. ✓   (1)

4.2   Calculate the value of the expression:

$4x^2 + 5x - 3$ if $x = -1$ (3)

$4(-1)^2 + 5(-1) - 3$ ✓✓

$= 4 \quad -5 -3$

$= 4 - 8$ ✓✓

$= -4$ ✓✓

[16]

4.3 Simplify the expression:

4.3.1 $4x^2 - 7x + 1 - 3x^2 + 8x - 2$ (3)

$x^2 + 1x - 1$

4.3.2 $-5x(2x - 3)$ (2)

$= -10x^2 + 15x$

4.3.3 $\sqrt{169a^2} + \sqrt[3]{64a^3}$ (3)

$= 13a + 4a$

$= 17a$

4.3.4 $\dfrac{10x^3 - 4x^2 + 8x}{2x}$ (3)

$= \dfrac{10x^3}{2x} - \dfrac{4x^2}{2x} + \dfrac{8x}{2x}$

$= 5x^2 - 2x + 4$

QUESTION FIVE

5.1 Solve for x:-

5.1.1 $7x - 30 = 4x - 6$ (3)

$\Rightarrow 7x - 4x = -6 + 30$

$\Rightarrow 3x = 24$

$x = 8$

5.1.2 $\dfrac{x}{2} - 3 = 7$ (2)

$\Rightarrow \dfrac{x}{2} = \dfrac{10}{1}$

$\Rightarrow x = 2 \times 10$

$= 20$

5.1.3 $x^3 = 64$ (2)

$\Rightarrow x^3 = 4^3$

$\Rightarrow x = 4$

[18]

5.2   Use the flow diagram below to answer the questions that follow:-

2   7

3 ──────► ┌─────────────────────┐ ──────► a
           │   2x + 3   │
           └─────────────────────┘

b   13
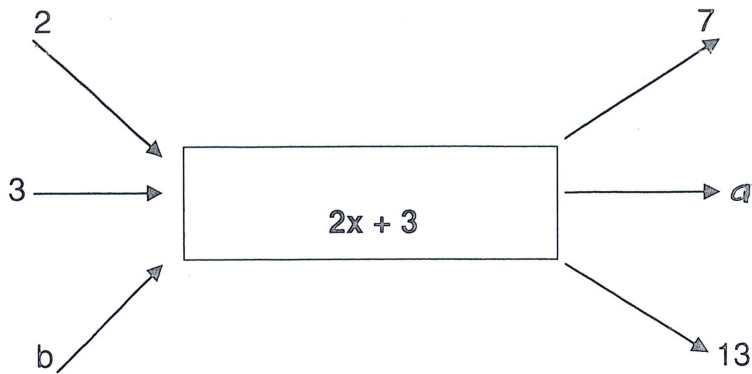
5.2.1 Calculate the value of a: (1)   5.2.2 Calculate the value of b: (2)

5.2.1.	5.2.2.
$2x + 3 = a$	$2x + 3 = 13$
$2(3) + 3 = a$	$2b + 3 = 13$ ✓
$6 + 3 = a$	$2b = 10$ ✓
$a = 9$ ✓	$b = 5.$ ✓

QUESTION SIX

6.1   Given $y = 2x + 1$

6.1.1   Complete the table below:-   (3)

X	− 1	0	1
y	−1	1	3

✓ ✓ ✓

6.1.2 Sketch the graph of $y = 2x + 1$ on the grid provided.   (4)

[10]
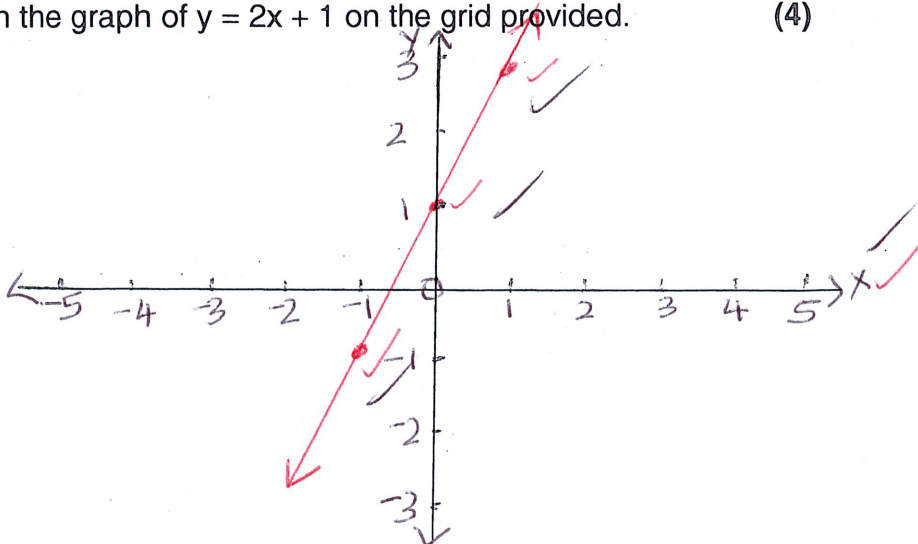
6.1.3 Is the graph increasing or decreasing?

increasing ✓ ✓ (1)

6.2 If A (–3 ; 5) is reflected on the X-axis, write down the co-ordinates of A (2)

A' (3; 5) ✓ ✓✓

6.3 Write down the co-ordinates of T if T (– 2 ; 3) is translated 4 units to the left

and 5 units down.

x-4 yes

T' (–6 ; –2) ✓ ✓✓

(2)

QUESTION SEVEN

7.1 The Mathematics test mark of a group of Grade 8 learners are given below.

23; 48; 52; 30; 29; 44; 48; 39; 55; 40; 30; 45; 46; 37; 41

7.1.1 Determine the median mark.

Med = 41 ✓✓✓✓ (2)

7.1.2 Write down the range.

r = 32 ✓ ✓ (1)

7.1.3 What is the modal mark 30; 48 ✓ ✓ (1)

7.1.4 Calculate the mean of the marks. (3)

Mean = $\frac{607}{15}$ ✓ ✓✓

= 40,46. ✓ ✓

QUESTION EIGHT

8.1 In the diagram below PQ // TE
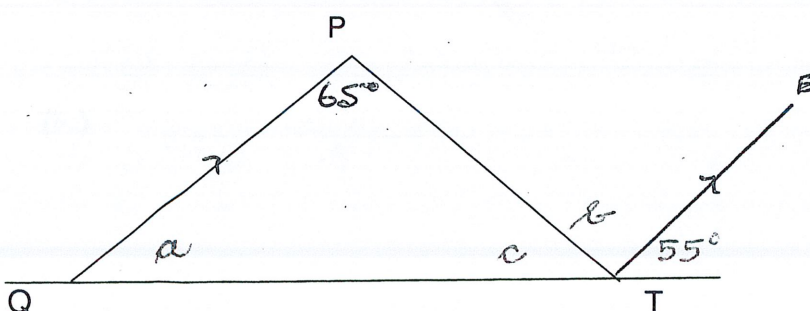
[12]

Calculate with reasons:-

8.1.1 a

$a = 55°$ (corres. ∠).

(2)

8.1.2 b

$b = 65°$ (alt. ∠'s).

~~$c = 18.$~~

(2)

8.1.3 c

$c = 180° - (55° + 65°)$ (sum of ∠'s of Δ) or (alt. ∠).

$= 180 - 120°$

$= 60°$

(2)

8.2   In the figure below EDGH is a parallelogram with EF // FG. $F\hat{E}H = X + 56°$

and $E\hat{H}G = X + 4°$
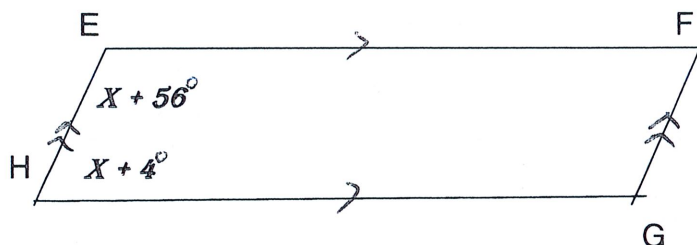
Calculate giving reasons :

8.2.1 the value of X

$x + 56° + x + 4° = 180°$ (co-int ∠'s).

$2x + 60° = 180°$

$2x = 120°$

$x = 60°$

(4)

[6]

8.2.2 the size of $\hat{\text{FEH}}$

$$\hat{\text{FEH}} = x + 56°$$
$$= 60° + 56° \checkmark\checkmark$$
$$= 116° \checkmark$$

(2)

QUESTION NINE

9.1 In the diagram below:

AC = 5 units ; AD = 4 units ; DB = 3 units. CD ⊥ AB
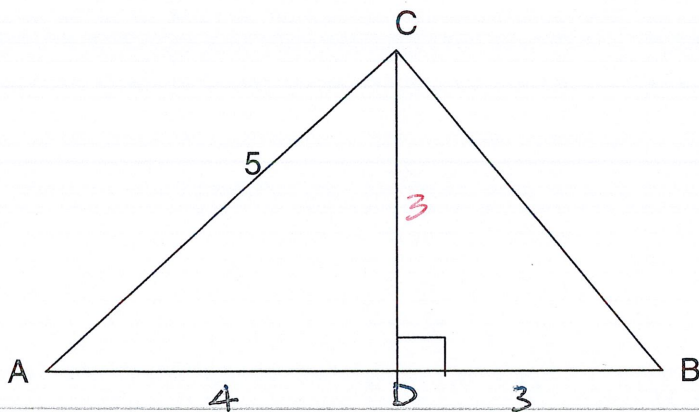
9.1.1 Find the length of CD. **(2)**

$$CD^2 = AC^2 - AD^2$$
$$= 5^2 - 4^2 \checkmark$$
$$= 25 - 16$$
$$= 9$$
$$CD = \sqrt{9}$$
$$= 3 \checkmark\checkmark$$

9.1.2 Find the size of B. **(2)**

$$\hat{B} = \frac{180° - 90°}{2} \ (\text{iso } \triangle). \checkmark\checkmark$$
$$= \frac{90°}{2}$$
$$= 45° \checkmark\checkmark$$

9.1.3 Find the area of △ABC **(2)**

$$\text{Area} = \frac{1}{2} b \times h$$
$$= \frac{1}{2} (7)(3) \checkmark\checkmark$$
$$= 10,5 \text{ sq. units.} \checkmark\checkmark$$

[8]

9.2 The 2 circles below have a common centre A. The radius of the big circle is 6 cm and the radius Of the smaller circle is 4 cm. Determine the area of the shaded region. (4)(3)
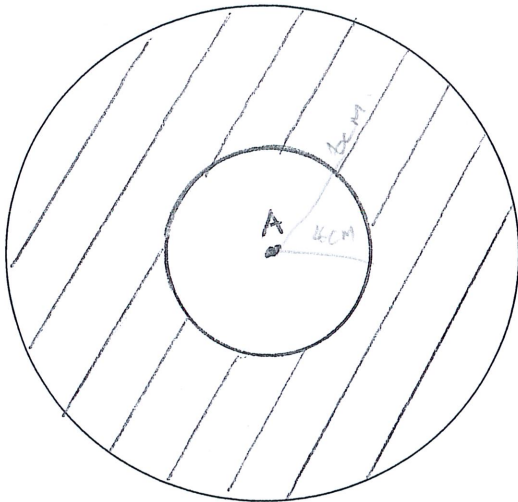
N.B. $\pi = 3,14$

Area of large circle $= \pi r^2$
$= 3,14 \times (6\,cm)^2$
$= 113,04\,cm^2$ ✓

Area of small circle $= \pi r^2$
$= 3,14 \times (4\,cm)^2$
$= 50,24\,cm^2$ ✓

Area of Shaded Region $= 113,04\,cm^2 - 50,24\,cm^2$
$= 62,8\,cm^2$ ✓

THE END!

[3]