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ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

2ND TERM EXAMINATION – 2019

Sub: Algebra & Geometry **Class:** 6 **F.M:** 90

Duration: 2hr 30min **Date:** 01.08.2019

ANSWER KEY

GROUP-A

1. MCQ 1×5=5

1.1 A constant is a polynomial of degree
a) 1 b)**0** c)cannot be determined d)none of these

1.2 How many lines of symmetry are there in a rectangle that is not a square?
a) 1 b)**2** c)4 d)6

1.3 How many lines of symmetry does a regular pentagon have?
a)1 b)2 c)4 d)**5**

1.4 Which of the following letters does not have a vertical line of symmetry?
a) M b)H c)**E** d)V

1.5 A semicircle has_____ line/s of symmetry?
a) 0 b) **1** c) 2 d) infinite

2. State true or false for the following statements: 1×4=4
   a) Is the algebraic expression $2/x+3/x^2-4x^2-2x+3$ a polynomial. **FALSE**
   b) Square of an integer is always positive. **TRUE**
   c) The odd power of a negative number is always negative. **TRUE**
   d) Cube of an integer is always negative. **FALSE**

3. Fill in the blanks: 1×8=8

a) Two lines that are the same distance apart everywhere are called **parallel lines**.
b) A line segment parallel to the level ground is a **horizontal** line segment.
c) If a transversal cuts two parallel lines, then pairs of corresponding angles are **equal**.
d) The interior angles on the same side of a transversal cutting two parallel lines are **supplementary/ co interior** .
e) A symbol that can take different numeral values is called a **variable**
f) The value of the expression 14-2g for g=6 is **2**
g) $(-3)^3\times(10)^2$**= -2700**
h) If A=x-y, B=y-z ,C=z-x then A+B+C=**0**

4. Answer the following questions: 1×8=8

a) Find the value of $(-2)^9$
Ans. **-512**
b) Write the following phrase using symbols: 30° less than current temperature t°C.
Ans. **$(t-30)^0$C**
c) Write the following phrase using symbols: the square of the sum of a and b.
Ans. **$(a+b)^2$**
d) Write the number 343 as power of 7.
Ans. **$(7)^3$**
e) Write the co efficient of a in –(1/5)ap.
Ans. **–(1/5)p**
f) Write down the algebraic expression whose terms are $-3p^2,2q^2,-6pq,-5$
Ans. **$-3p^2+2q^2-6pq-5$**
g) Write down the degree of the polynomial :$a^2b+a^3b^2+2ab$
Ans. **5**
h) Write the coefficient of a in –a.
Ans. **-1**

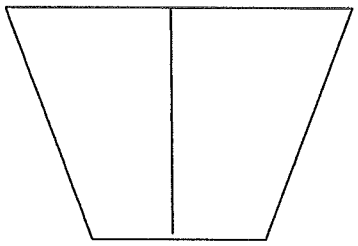
GROUP-B

A. **Answer the following questions:** **2×5=10**

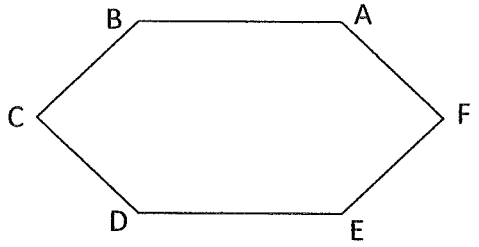
1. Evaluate the value of:
   $(2^2 \times 5^2) = 4 \times 25 = \mathbf{100}$
2. Simplify : $\{(-3)^5\}^2 = (-243)^2 = \mathbf{59049 = (-3)^{10}}$
3. Find the square of the following number:
   $(13/19) = \mathbf{169/361}$
4. Find the cube of the following number: $17 = \mathbf{4913}$
5. Find the value of $4a/10$, if $a=5$ ans. **2**

B. Answer the following questions: (any five) 3×5=15

1. Subtract as indicated:
   $(7-x+x^2)-(x^2+6-3x) = \mathbf{1+2x}$
2. Simplify the following:
   $(2x-y)+(2y-3x)+(3y-x) = \mathbf{-2x+4y}$
3. Find the product : $5(3p-2q) = \mathbf{15p-10q}$
4. Add the following: $6a^4b^2x^2$, $-6a^4b^2x^2 = \mathbf{0}$
5. Draw the line of symmetry for the given shape and count their number. **One line of symmetry**



6. Identify parallel line segment in the given figure: **AB parallel to DE, BC parallel to EF,CD parallel to AF**



7. Simplify:
   $-4(2x+y)+2(x-y)+4x-5$
   $= \mathbf{-2x-6y-5}$

GROUP –C

I . Answer the following questions: (Any 8) **5 X 8=40**

1. Add : $3y^2-4y+5$, $2y^2-7y-1$ and y^2-3y-5.
   Ans. $3y^2-4y+5+2y^2-7y-1+y^2-3y-5$
   $= \mathbf{6y^2-14y-1}$
2. Subtract : $1-p+p^2$ from p^2+p-1.
   Ans. $p^2+p-1-(1-p+p^2)$
   $= \mathbf{2p-2}$
3. If $x=3$, $y=2$ and $z=5$, find the value of $6(x+3y)-(5z-x)$
   Ans. $6(3+6)-(5\times5-3)$
   $= \mathbf{32}$

4. Add :

$5a^2 - 2ab - 9b^2$

$-a^2 + 4ab - b^2$

$4a^2+2ab-10b^2$

5. Simplify : $3y^2 - 6 - 2y + y^2 - 3y + 7 - y^2 - 4y - y^2 + 5$

Ans. **$2y^2+6-9y$**

6. Simplify : $4x^2 - [3y^2 - \{5x^2 - 2y^2 - (x^2 - y^2)\}]$

Ans. $4x^2-[3y^2-\{5x^2-2y^2-x^2+y^2)\}]$

$=4x^2-[3y^2-5x^2+2y^2+x^2-y^2]$

$=4x^2-3y^2+5x^2-2y^2-x^2+y^2$

$=\mathbf{8x^2-4y^2}$

7.What is the value of $3x + 4y - 6$ when $x = 2\frac{1}{3}$, $y = 4\frac{3}{4}$

Ans. $=3\times(7/3)+4\times(19/4)-6$

$=7+19-6$

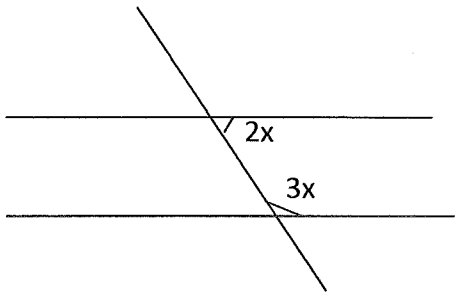
$=\mathbf{20}$

8. Evaluate : $5^2 \text{ X } (-1)^2 + 6 \text{ X } (\frac{3}{7})^0$

Ans.$=25\times1+6$

$=\mathbf{31}$

9. Find the value of the lettered angles :



Ans. as co-interior angles are supplementary

So, $2x+3x=180°$ or, $5x=180°$ or, $x=36°$ or, $2x=\mathbf{72°}$ and $3x=\mathbf{108°}$

10. Construct a line segment 6.8cm long. Construct its line of symmetry.

Ans.

Construction .