ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

Second Term Examination - 2018

Class : 7

Sub :Algebra and Geometry **F.M.: 90**

DURATION:2 Hrs30Mins **DATE:30.07.2018**

Group-A

1.Choose the correct answer. 1x5=5

i) degree of $8a^3b^5 + a^2b^2$ is

a) 8 b)12 c) 10 d)4

ii)The sum of the angle measures of triangle is

a) 90° b)360° c)180° d)720°

iii)Supplement angle of 84° is

a)86° b)96° c)6° d) none of these

iv)Number of lines of symmetry in a rectangle is

a)2 b)4 c)3 d) none of these

v)The number of letters in the word SNAIL that have symmetry is

a)0 b)1 c)2 d)3

2. Write True or False. 1x5=5

i) The angles formed by two intersecting lines having no common arm are called vertically opposite angles.

ii) The product of $-3abc$, $-4a^2bc^3$ and $4a^3b^4c^3$ is $48a^6b^6c^7$.

iii) Solving $2+\frac{2x}{3}=8$, we get x=8.

iv)In case of horizontal reflection line of symmetry is vertical.

v)If in an isosceles triangle the unequal angle measures 70° then the measure of equal angles is 45°.

3. Fill in the blanks. 1x5=5

i)If a side of a triangle is extended then the exterior angle so formed is equal to the _____.

ii)After horizontal reflection of the word MOM we get the word_____.

iii) In a right angled triangle the side opposite to the right angle is called_____.

iv)Arranging $x^2y - 3y^3 + 4x^3 - 2xy^2$ in order of decreasing degree in x we have_____.

v)Putting c=10 in $(\frac{c}{2})^3$ we get the value_____.

4.Match the following. 1x5=5

Column A	Column B
i) $7x^2-4y$	i) Three line of symmetry
ii)Equilateral triangle has	ii) 90^0
iii)a circle has	iii)Is a binamoial
iv)Each angle of a equilateral triangle is	iv)infinite line of symmetry
v)If two angles are equal and supplementary,then each angle is	v) 60^0

5. Answer the following questions. 1x5=5

i)What is bisector of an angle?

ii)What is Exterior angle?

iii)Divide: $\frac{3}{7}a^3b^2$ by $(-\frac{9}{14}ab)$

iv)Why is $x^3+7x^2-2x+\frac{9}{x}$ not a polynomial?

v)Write down the expression Pythagorus theorem.

Group- B

6. Very short answer type questions: 2x5 = 10

i) If a = 2, b = 1 and c = 10 find $(-a-b+c)^2$
ii) Subtract 6a – 4b from 5a + 8b
iii) Multiply (5x – 9y) and (3x + 11y)
iv) Find the complement of 58^o.
v) Define Isosceles triangle.

7. Short answer type questions : 3x5 = 15

i) Divide : $-12x^2y^2 +4x^3y+5xy-9xy^3$ by -4x .
ii) Evaluate : $(105)^2$ **Or** Evaluate : $(97)^2$
iii) Find the product of $(5x-\frac{1}{10}y)$ $(5x-\frac{1}{10}y)$
iv) An angle is 40^o less than three times its supplement. Find the angles.

Or

Two complementary angles are in the ratio 4:5. Find the angles.
v) The angles of a triangle are in the ratio 3:7:8 .
Find the measure of each angle of the triangle.

Group C

8. Answer any eight of the following questions. 5X8

i. Simplify $\frac{297*297-203*203}{94}$.

ii. Simplify $(7-y)^2 +14y$.

iii. Divide $6x^3 - x +19x^2 -29$ by 2x+3 and verify the result.

iv. Draw the line y=x+2.

v. The angles of a triangle are in the ratio 3:7:8. Find the measure of each angle of the triangle.

vi. Draw the figure to illustrate your answer.
Four lines of a symmetry and order-4 rotational symmetry.

vii. Draw an equilateral triangle. State how many lines of symmetry . Draw these lines of symmetry.

viii. Divide $18x^2yz - 28 x^2y^2z^3 + 32y^2z^2)$ by (-4xy)

ix. Define order of rotational symmetry with an example.

x. In a parallelogram ABCD, if BC=14cm, CF=9cm, BG=21cm, find AB.

.....

Debaleena Ganguly

ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

Second Term Examination – 2018

Sub: Algebra and Geometry **Class-7** **F.M-90**

MODEL ANSWER

Group-A

1.Choose the correct answer.

i) degree of $8a^3b^5 + a^2b^2$ is

a) 8

ii)The sum of the angle measures of triangle is

c)180°

iii)Supplement angle of 84° is

b)96°

iv)Number of lines of symmetry in a rectangle is

a)2

v)The number of letters in the word SNAIL that have symmetry is

c)2

2. Write True or False.

i) The angles formed by two intersecting lines having no common arm are called vertically opposite angles. true

ii) The product of $-3abc$, $-4a^2bc^3$ and $4a^3b^4c^3$ is $48a^6b^6c^7$. True

iii) Solving $2+\frac{2x}{3}=8$, we get x=8. False

iv)In case of horizontal reflection line of symmetry is vertical. False

v)If in an isosceles triangle the unequal angle measures 70° then the measure of equal angles is 45°. False

3. Fill in the blanks.

i)If a side of a triangle is extended then the exterior angle so formed is equal to the sum of the two interior opposite angles.

ii)After horizontal reflection of the word MOM we get the word MOM.

iii) In a right angled triangle the side opposite to the right angle is called hypotenuse.

iv)Arranging $x^2y - 3y^3 + 4x^3 - 2xy^2$ in order of decreasing degree in x we have $4x^3 + x^2y - 2xy^2 - 3y^3$

v)Putting c=10 in $(\frac{c}{2})^3$ we get the value 125.

4.Match the following.

Column A	Column B
i) $7x^2-4y$	i) Is a binomial
ii)Equilateral triangle has	ii) Three lines of symmetry
iii)a circle has	iii) infinite line of symmetry
iv)Each angle of a equilateral triangle is	iv) 60^o
v)If two angles are equal and supplementary,then each angle is	v) 90^0

5. Answer the following questions.

i)What is bisector of an angle? Ans: the line segment that divides an angle into two equal halves

ii)What is Exterior angle?Ans: when any side of a triangle is extended beyond the vertex it forms an exterior angle with the other side at the same vertex.

iii)Divide: $\frac{3}{7}a^3b^2$ by $(-\frac{9}{14}ab)$. Ans: $-2/3\ a^2b$

iv)Why is $x^3+7x^2-2x+\frac{9}{x}$ not a polynomial?Ans: power of x is negative.

v)Write down the expression Pythagorus theorem.

Ans: $hypotenuse^2 = Base^2 + Perpendicular^2$

Group-B

6.i)Ans:$(-2-1+10)^2 = (7)^2 = 49$

ii)Ans: $-a+12b$

iii)$(5x-9y)(3x+11y) = 15x^2+55xy - 27xy - 99y^2$

$= 15x^2+28xy - 99y^2$

iv)Complement of $58^0 = 90^0 - 58^0 = 32^0$

v)A triangle which has atleast two equal sides is known as isosceles triangle.

7i)$\frac{-12x^2y^2}{-4x} + \frac{4x^3y}{-4x} + \frac{5xy}{-4x} - \frac{9xy^3}{-4x}$

$= 3xy^2 - x^2y - \frac{5}{4}y + \frac{9}{4}y^3$

ii)$(105)^2 = (100+5)^2 = (100)^2 + 2 \times 100 \times 5 + (3)^2 = 10000+1000+25 = 11025$

or $(97)^2 = (100-3)^2 = (100)^2 - 2 \times 100 \times 3 + (3)^2 = 10000 - 600 + 9 = 9409$

iii)$(5x-\frac{y}{10})^2 = (5x)^2 - 2x\ 5x \times \frac{y}{10} + (\frac{y}{10})^2 = 25x^2 - xy + \frac{y^2}{100}$

iv)Let one angle be x. supplement of this angle is (180-x)

according to the question

$x = 3(180-x) - 40$

or, $x = 540 - 3x - 40$

or, $x+3x = 500$

or, $4x = 500$

or, $x = 125^o$

supplement $= 180^0 - 125^0 = 55^0$

Required angles are 125^0 and 55^0

Or

Let the angles be 4x and 5x

The given angles are complementary $4x + 5x = 90^0$

Or, $9x = 90$

Or, $x = 10$

Therefore $4x = 40^0$ and $5x = 50$

v)let the hypotenuse be of length c

the triangle is right angled

so, by the pythogorus theorem

$c^2 = 3^2 + 4^2 = 9+16 = 25$

$c = \sqrt{25} = 5$ units

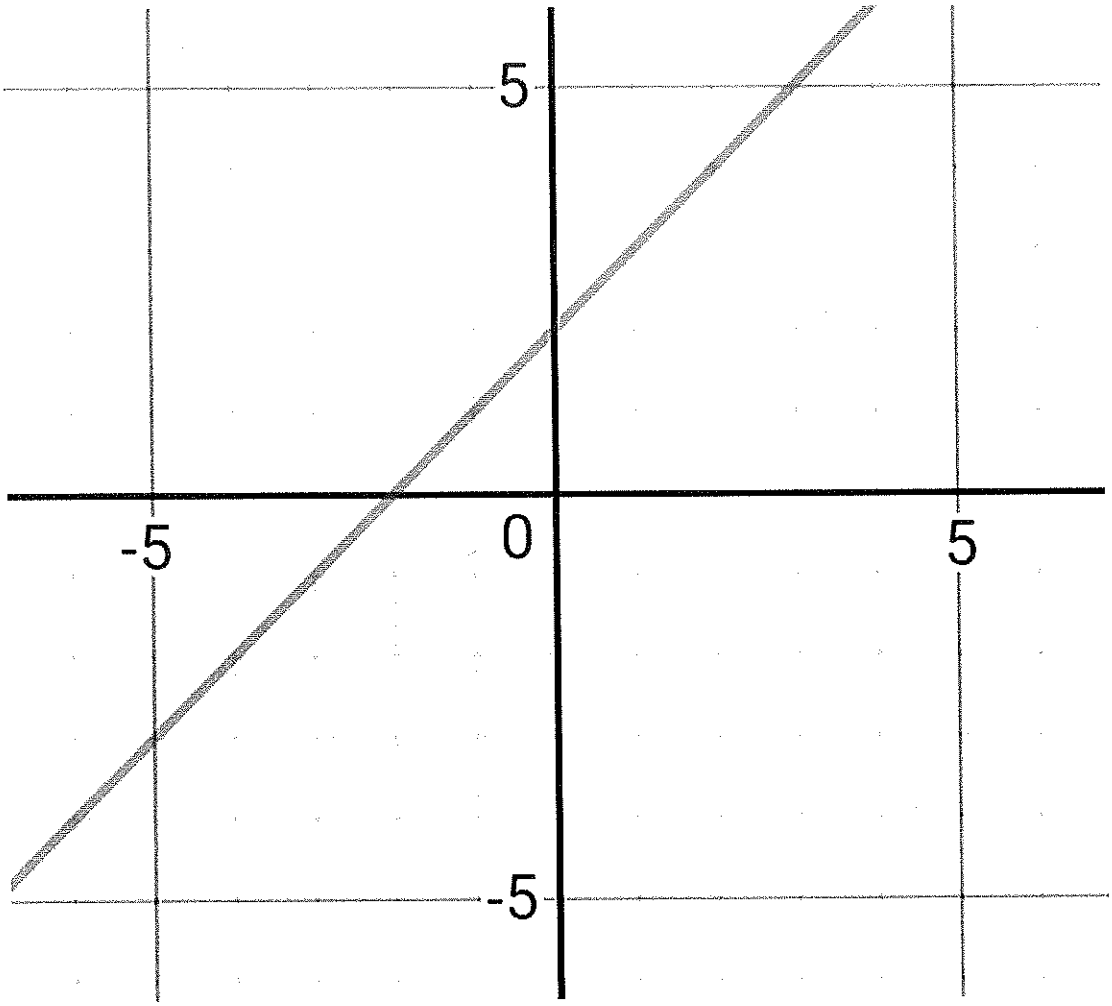
GroupC

8.i. $\frac{297^2 - 203^2}{94} = \frac{(297+203)(297-203)}{94} = \frac{500X\ 94}{94} = 500.$

ii. $(7 - y)^2 + 14y = y^2 + 49.$

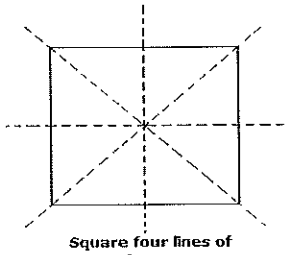
iii. Quitient ($3x^2 + 5x - 8$) and remainder (-5)

iv.

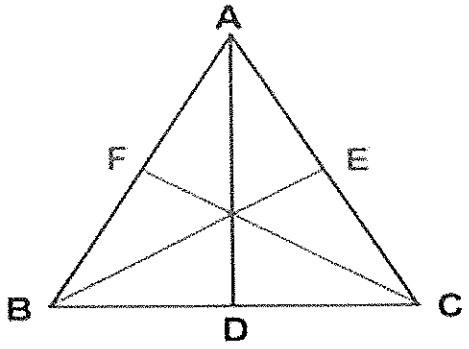


v. Angles are $\frac{3*180}{18} = 30^0$, $\frac{7*180}{18} = 70^0$, $\frac{8*180}{18} = 80^0$.

vi.



vii.



viii. $\frac{-9xz}{2} - \frac{8yz^2}{x} + 7xyz^3.$

ix. if a figure is unchanged after a rotation through an angle about a centre O, it is said to have rotational symmetry. The number of times this is possible in rotation of 360^0 is called the order of rotational symmetry.

x.