***Cruise School: Gebriel campus***

***Individual Assignment***

***Subject: Mathematics***

***Grade: 10***

Total weight: equivalent to 6th model / mid exam

Submission date: on the day school reopen.

Assignment should be submitted in hard copy.

Assignment should be presented individually.

April 2020

**Assignment 1 ( Application on trigonometry )**

1. **choose the correct answer from the given alternatives and (justify your answer)**
2. The angle of elevation and depression of the top of building from the foot and the top of a tower are 300 and 450 respectively if the building is 20 m high then what is the height of the tower ?
3. 20$\sqrt{3}m$ B. 20(1+$\sqrt{3})$m C. 40 (1+$\sqrt{3}$) m D. 40$\sqrt{3}$m
4. Two points on a level ground are 500m a part, the angle of elevation from these points to the top of a tower are 450 and 600 respectively what is the height of the tower ?
5. 50$\sqrt{3}$m B. 50 ( 1+$\sqrt{3}$m) C. 250 ($\sqrt{3}$+3)m D. 500($\sqrt{3}$+1)m
6. From a cliff 40m high the angle of a could is 300 and the angel of depression of its image in a lake is 600 . find the height of the could above the lake ?
7. 80m B. 40m C. 120m 40$\sqrt{3}$m
8. If $∆$ABc is a right angled triangle right angled at C if cos B= $\frac{4}{5}$ and $\rightharpoonaccent{BC}$ = 2cm , which of the following is Not true ?
9. m$\left(B\hat{A}C\right)$> m$\left(A\hat{B}C\right)$
10. 1- 2 $sin^{2}B$= $^{7}/\_{25}$
11. 2 sin B cos B = $^{24}/\_{25}$
12. Perimeter of $∆ABC=16cm $
13. Suppose a building casts a shadow of length 45m, when the angle of elevation of the sun is 300 . How high is the building ?
14. 45$\sqrt{3}m$ C. $\frac{45\sqrt{2}}{2}$
15. $\frac{45\sqrt{3}m}{2}$ D. 15$\sqrt{3}m$
16. Two men A and B stand on opposite side of a tower 15m long if A observes the top of the tower at top of the tower at angle of elevation 600 and B observes the same point at an angel of elevation 300, then how for a part are the two men ?
17. 600$\sqrt{3}m$ B. 450$\sqrt{3}m$ C. 100$\sqrt{3}m$ D. 200$\sqrt{3}m$

**Unit 6**

**Theorems on triangle**

* Median of a triangle
* A median of a triangle is a line segment drawn from any vertex to the midpoint the opposite side

A

L

N

C

B

C

M

* Show that $\overline{AM},$ $\overline{BN}$ and $\overline{Cl}$ are medians
1. $\overline{AO}$ = $\frac{2}{3}\overline{AM}$ and $\overline{OM}$ = $\frac{1}{3}\overline{AM}$
2. $\overline{BO}$ = $^{2}/\_{3}\overline{BN }$and $\overline{ON}$ = $\frac{1}{3}\overline{BN}$
3. $\overline{CO}$ = $^{2}/\_{3}\overline{Cl}$ and $\overline{OL}$ = $\frac{1}{3}\overline{CL}$
* Altitude of triangles
* A line segment drawn from a vertex perpendicular to the opposite side or to the opposite side produced

In the figure below $∆$ABC

A

$$\overline{AG}⊥\overline{BC}$$

$$\overline{BE}⊥\overline{AC}$$

$$\overline{CF}⊥\overline{AB}$$

F

E

C

G

B

 Show that

$$\overline{AO}≡\overline{BO}≡\overline{CO}$$

Angel bisector of triangles

The angel bisector of a triangle are concurrent at a point which his equidistant from the sides of a triangle

 Consider the right angled triangle ABC right angel at C , CD $⊥AB$

C

B

D

A

$CD^{2}$ = $\overline{AD}$ x$ \overline{DB}$ ( Altitude theorem )

$AC^{2}$ = $\overline{AD}$ x$ \overline{AB}$ $\left(Evclid^{'}sthroem \right)$

$BC^{2}$ = $\overline{BD}$ x$ \overline{AB}$

7. In the right triangle $∆ABC$ with lengths b, c, h, c and y show below, which of the following is Not true ?

**B**

x

 A. $b^{2}$ = y (x+y) B. $C^{2}$ = x (x+y)

**h**

**C**

y

C. $\left(x+y\right)^{2}$ = $b^{2}+C^{2}$ D. $\left(2h\right)^{2}=b^{2}+c^{2}$

**A**

**b**

**C**

8. In the figure below if $\overline{AD}⊥$ $\overline{CD}$ and the sides measured in cm, what is the area of the figure ?

 A. 8cm2 B. 10cm2 C. $\frac{25}{\sqrt{2}}cm^{2}$ D. 12$cm^{2}$

C

**B**

**D**

5m

2

2$\sqrt{2}$

A

E

9. In the figure below $\overline{AB}$ $≡\overline{AC}$ , $\overline{DB}≡\overline{DC} $ and m(<BDC)= 2m(<A) = 700 what is m(<B)?

A. 200  B. 250 C. 350 D. 550

**A**

**C**

**D**

**B**

1. In the figure if $\overline{AB}$ is a diameter of the circle $\overline{AB}$// $\overline{CD}$ , m$\left(A\hat{D}E\right)$= 300 and m$\left(A\hat{B}D\right)$= 200 , then what is the m(<BCD)?

E

B

A

C

D

1. 1300 B. 1200 C. 1100  D. 1000
2. In the parallelogram ABCD shown below if AB= 4cm , BC = 6cm and m(<ABC) = 450 what is the area of ABCD ?

A

D

4cm

C

B

6cm

1. 24$cm^{2}$ B. 6$\sqrt{2}cm^{2}$ C. 12$cm^{2}$ D. 12$\sqrt{2}cm^{2}$
2. In $∆$ABC shown below $θ$ is the intersection point of the medians $\overline{AD}$ and $\overline{BE}$ , if the length of $\overline{QE}$ = 4cm what is the length of $\overline{BQ}$ ?
3. 8cm B. 12cm C. 6cm D. 4cm

A

E

Q

B

D

C

1. The diagonals of a rhombus measure 12cm and 16cm which of the following relation is true about the interior obtuse angle B of the rhombus?
2. Tan P/2 = 0.75 C. tan B/2 = 0.6
3. Cos B/2 = 0.8 D. sin B/2 = 0.8
4. In the figure O is the center of the circle with radius 9 cm and m (A$\hat{O}$B) = 70o what is the area of the un shaded region
5. $\frac{261}{4}$ $π$ cm2 B. $\frac{9}{4}$ $π$ cm2 C. $\frac{63}{4}$ $π$ cm2 D. $^{7}/\_{2}π$ cm2

A

O

B

1. Let quadrilateral ABCD and the given conditions as shown in the figure below if $\overline{BD}$ = 12cm, then what is the area of this quadrilateral?
2. 6$cm^{2}$ C. 36(1+$\sqrt{3})$ $cm^{2}$
3. 18(1+$\sqrt{3})$ $cm^{2}$ D. 18($\sqrt{2}+\sqrt{3})$ $cm^{2}$

D

300

B

300

A

C