Mathematics Worksheet 1 for Grade 10 (Unit One) (2019)

I. For the following questions choose the best answer

1. Which one of the following sets ordered pairs are functions?

.$A,(2,1),(3,3),(3,4),(1,5)$ $B,(4,3),(-1,1),(-3,3),(4,2)$ $C,(1,1),(2,3),(2,4),(-1,1)$

.$D,(-1,1),(0,1),(3,2),(-1,1),(3,2)$

2. ¿the given below which one of the following is arithmetic pattern?

$A,36,44,50,---$ $B,4,8,12,16,---$ $C,2,4,8,16,32,---$ $D,50,45,35,30,----$¿

3. Let $f(x)=x+5 \wedge g(x)=x-1$, which one of the following statement is true?

$A,(f+g)(2)=6$ $B,(f-g)(-2)=6$ $C,(f.g)(2)=8$ $D,\frac{f}{g}(-2)=-3$

4. Which one of the following relation is a function? A, X is the area of triangle y.

. B, The relation R is a set of ordered pairs $(x,y):y=x^2$

C, The relation R is a set of ordered pairs $(x,y):y=-3x$ D, $A \wedge C$

5. Given $f(x)=4x^2-5x-6 \wedge g(x)=4x^2+5x+2$, then the value of $(f-g)(x)---$¿

$A,8x^2-4$ $B,8x^2+10x-8$ $C,-10x-8$ $D,4x^2+10x+8$

6. If $f(x)=2x+\sqrt{4+x}$, then what is the value of $f(5)$? $A,3$ $B,13$ $C,9$ $D,12$

7. Which of the following graph of linear function is decreasing?

$A,3y-2x=5$ $B,y-3=2$ $C,2x-2=2y$ $D,-3x-2=3y$

8. Which of one the following is the domain of $R=\{(x,y)\}:y=\sqrt{3-x}$

$A,\{x:x \in IR\}$ $B,\{x:x \geq 0\}$ $C,\{x:x \leq 3\}$ $D,\{x:-3 \leq x \leq 3\}$

9. If $f(x)=\frac{2x+3}{x-1} \wedge g(x)=\frac{x+8}{x}$, $(2f+3g)(2)$ is equal¿$--A,19$ $B,35$ $C,29$ $D,12$

10.

The curve $y=x^2$ is shifted so, that its axis of symmetry is the line $x=1 \wedge$ its orthogonal axis is $y=3$, then the equsion of the new curve is$--A,y=(x-1)^2+3$ $B,y=(x+3)^2+1$ $C,y=$¿¿

.$D,y=(x+1)^2+3$

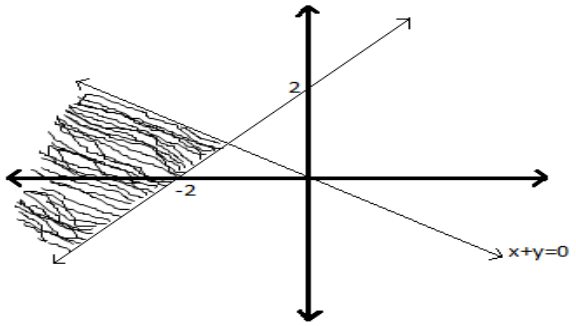
11.

Which of one the following is not true about the graph of quadratic function $f(x)=x^2-6x+5$?

A, The vertex is $(3,-4)$ B, The graph cross the $y-$axis at $y=5$

C, The orthogonal axis of the curve is $y=-4$ D, The graph is open down ward

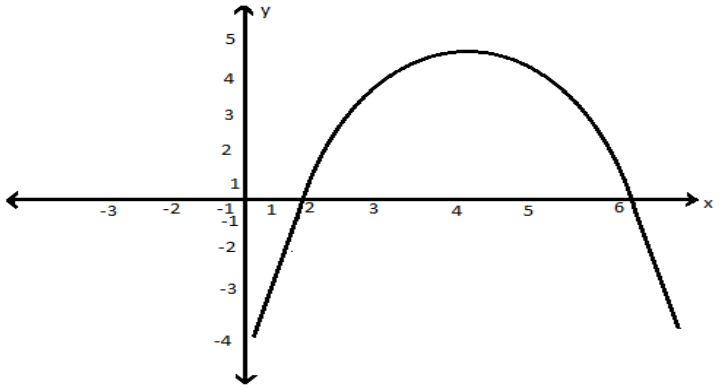
12. The shaded region $\in$ the following figure is the graph of a relation R.



which one of the following is the domain ∧ range of R respectively? A , $\left(-\infty, -\frac{1}{2}\right)$ ∧ B , R ∧ $\left(-\infty, -\frac{1}{2}\right)$ C

13.

The following figure is the graph of a quardatic function $f(x)=ax^2+bx+c$ ∈ the set of real numbe.



which one of the following is the solution set of the inequality $f(x) \le 0$?

A , $\{: x \le 0 \wedge x \ge -4\}$ B , $\{x : x \le -4 \vee x \ge 0\}$ C , $\{x : x \ge 2 \wedge x \le -6\}$ D , $\{x : x \le 2 \vee x \ge -6\}$

14. Which quadratic function has maximum value of the function?

A , $f(x)=x^2+4x+1$ B , $f(x)=-4x+x^2-2$ C , $f(x)=x^2-4$ D , $f(x)=4x-x^2+1$

15. The range of the function $g(x)=-x^2+2x+1$ is −−−−−¿

A , $\{y : y \ge 2\}$ B , $\{y : y \le 1\}$ C , $\{y : \le 2\}$ D , $\{y : y \in R\}$

16. Which one of the following is not bisective function? A , $f : R \to R$, $f(x)=x-2$

B , $f : R \to [0, \infty]$, $f(x)=x^2$ C , $f : R \to R$, $g(x)=|x|$ D , $f : R \to R$, $h(x)=3x+1$

II. Work out, do with necessary steps

1. Let $f(x)=2x^2-1 \wedge g(x)=x-3$, then Evalute i , $\frac{f}{g}$ ii , $(fg)(2)$ iii , $\frac{f}{g}(5)$

2.

The curve $y=-x^2$ is shifted so that its axis of symmentry is the line $x=1 \wedge$ its orthogonal axis is $y=3$.

.a , write down the equation of the new curve

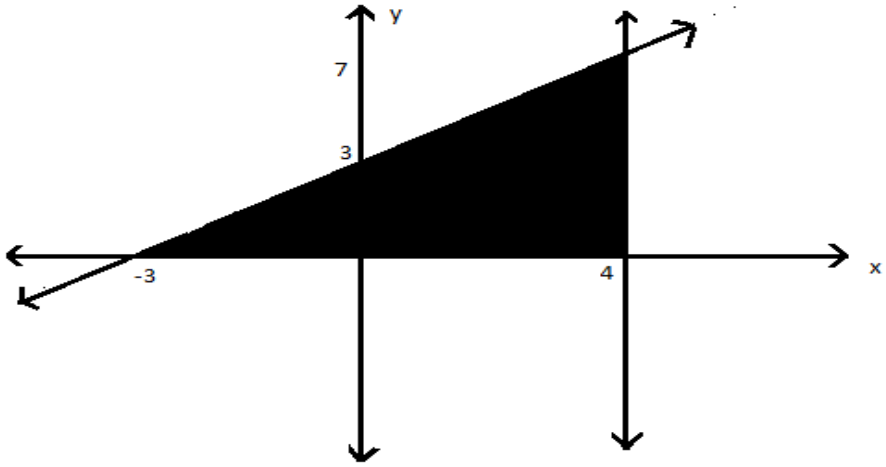
b , find the coordinates of the points where this new curve cuts the $x \wedge y$ axiss .

.c, sketch the curve .

3.

¿ the graph of the following relation , represented by the shaded region , specify the relation ∧ ¿

.determine its domain ∧ range .



In 2018 E.C Agew mider comprehensive Senior School Grade 10 Mathematics mid Exam from 15%.

Time allowed: 1 hour

I. Write true if the statement is correct otherwise write false. (each one point)

1. *The point* $(-5,2)$ *is located quadrant III .*
2. *If* R *is a relation of a set of order pairs* (x,y) *of real numbers such that* $y=3x-2$, *then* (z,y) *belongs .*¿ R.
3. *The domian of* $f(x)=\frac{1}{x^2-4}$ *is* $R/\{4\}$

III. Choose the best answer from the following given alternatives (each one point)

4. *Which of the following order pairs is not a function ?* $A,(1,2),(2,3),(3,4)$ $B,(1,1),(2,1),(3,1)$ $.C,(1,2),(1,3),(2,4)$ $D,(x,x^2):x\in R$
5. *Which of the following is a rithemetic pattern ?* $A,16,24,30,\ldots$ $B,3,6,9,12,\ldots$ $.C,2,4,8,16,32,\ldots$ $D,50,45,35,30,\ldots$
6. *If* $3+4y=5x$, *then the slope* $\wedge$ $y-$*intercept is* $----A,\frac{\frac{5}{4}\wedge 3}{4}$ $B,\frac{5\wedge -3}{4}$ $.C,\frac{\frac{5}{4}\wedge -3}{4}$ $D,\frac{\frac{4}{5}\wedge -3}{4}$
7. *Let* $f(x)=x+3\wedge g(x)=x-2$, *which one of the following statement is true ?*

.$A, (f+g)(2)=6$ $B, (f-g)(-2)=1$ $C, f.g(2)=0$ $D, \frac{f}{g}(2)=\frac{1}{4}$

8. *If* $f(x)=\frac{x+3}{x-2}$, *what is the range of* f ? $A, R¿\{2¿\}$ $B, R¿\{3¿\}$ $C, R¿\{1¿\}$ D, R

9. *If each element* $\in$ *the domian of a function has a distinict image* $\in$ *the co-domian, then the funct*
i on is said to be----

A, *one¿one function* B, *on¿function* C, *constant function* D, *surjective function*

III. Match for column "A" from column "B" the correct answer (each one point)

Column "A"	***Column "B"***
10. $f(x)=x^2$	A, *domian* $[0,\infty¿$, *range* $[0,\infty¿$
11. $f(x)=\sqrt{x}$	B, *domian* $(-\infty,\infty)$, *range*, $[0,\infty¿$
12. $f(x)=\frac{1}{x}$	C, *domian* $(-\infty,0)\cup(0,\infty)$, *range* $(\infty,0)\cup(0,\infty)$
13. $f(x)=\lvert x\rvert$	D, *domian* $(-\infty,\infty)$, *range* $=[0,\infty¿$
	.E, *domian* $R\wedge$ *range* R

IV. ***Work out do the following questions with necessary steps. (each 0.5 Points)***

14. *If* $f(x)=x^2+6x+5$

.*a, find the vertex* $(0.5\,point)$

.*b, find the y intercept* $(0.5\,point)$

.*c, find the x intercept* $(0.5\,point)$

.*d, draw the graph (1.5 point)*

Set by grade 10 mathematics Teachers

In 2018 E.C 1st semester grade 10 mathematics mid examination

Table of specification

Number of units	Content or sub topic	Number of period in each sub topic	Mathematical calculations	Number of questions in each sub topics	Type of questions				
					True or False	Matching	Choose	Work out	Remark

Unit one	Patterns	1	$\frac{1\times15}{29}=0.5$	1	-	-	1	-	
	Relation	7	$\frac{7\times15}{29}=3.6$	4	2	-	2	-	
	Functions	16	$\frac{16\times15}{29}=8.3$	8	1	4	3	-	
	Application	5	$\frac{5\times15}{29}=2.58$	2	-	-	-	2	