ST.MARRY cathediral HIGH SHOOL MATHEMATICS WORK SHEET FOR GRADE NINE IN 20012.

FOR EACH OF THE FOLOWING QUESTION GIVE THE CORRECT ANSERWER.S

1. IF A ∩ B= {a,b,c} and A ∩ C ={1,2,3} ,then find A ∩(BUC).

2. Let A={1,4,7,8} and B={ 7,8,9,10,11,12} then find AΔB.

3. If A\B={7,8,9} and B\A={1,5,14} ,Then find AΔB.

4. Let A = {1,2,3,4,6}&Let R be the relation on A defined by R = {(a, b) : a, b A ,a is a factor of b} . Find the domain and range of R .

5. Let R be a relation on the set A = {1,2,3,4,5,6} defined by R = {(a, b) : a +b≤ 9}.then List the elements of R.

6. Let A = {1,2,3} and B={3,5,6,8}. Which of the following are functions from A to B ?

a) f = {(1,3), (2,3), (3,3)} c) f = {(1,8), (2,5) ,(3,9)}

b) f = {(1,3), (2,5), (1,6)} d) f = {(1,6), (2,5), (3,3)}

7 .Fill in each blank using the word bank.

Parabola , minimum , x-intercept

ax2+bx+c , Maximum , zeros /roots

1. Standard form of a quadratic function is f(x) = _____

2. The shape of a quadratic equation is called a _____

3. When the vertex is the highest point on the graph, we call that a _____.

4. When the vertex is the lowest point on the graph, we call that a _____.

5. Our solutions are the _____.

6. Solutions to quadratic equations are called _____::

Example: For the quadratic function f(x)= -4x – 5

a) Determine whether it is up ward or dawn ward.
b) Find the axis of symmetry of the graph.
c) Find the vertex of the graph ,maximum or minimum point and maximum or minimum value .
d) Find the y-intercept of the graph.
e) Find the x-intercept of the graph.
f) The domain of f(x).
g) The range of f(x).

h) Sketch graph of f(x).

SOLUTION

a=1 , b=-4 and c=-5

a: Since a=1>0 the graph of f(x) is upward parabola, then its graph has minimum point .

b: Find the axis of symmetry use x====2 the vertical line x=2 is axis of symmetry .

c: Find the vertex substitute 2 for x to get the y –coordinate. F(2)= -4x – 5 $=(2)^2$ -4(2)-5=-9. Vertex (2,-9) this is the minimum point of the graph of f(x)and -9 is the minimum value of f(x).

d: Find y-intercept(when x=0) ,$F(0)=(0)^2$ –4(0) -5=-5 ,at y=-5 the graph intercept the y-axis or(0,-5)

e: Find the x-intercept (when y=0) we can use the quadratic formula or factorization to find the x-intercept

( ). Let find by factorization x^2 -4x-5=0.

X^2-4x-5=0

X^2+X-5X-5=0

X(X+1)-5(X+1)=0

(X+1)(X-5)=0, Then the graph cross the x-axis at x=-1 and x=5. Or (-1 , 0)and (5,0).

f:domain of the set of all real number.

f: Range of (x) is y:y≥f()=f()=f(2) $=(2)^2$ -4(2)-5≥-9).therefore range of f(x) is(y:y≥-9).

7. Based on the above example for each of the following quadratic function.

i. $F(x)=x^2$ + 4x-12
ii. $F(x)=-2x^2$+x+6
iii. $F(x)=x^2$+5x
iv. $F(x)=-2x^2$-10

a)Determine whether it is up ward or dawn ward.

b)Find the axis of symmetry of the graph.

c)Find the vertex of the graph ,maximum or minimum point and maximum or minimum value .

d) Find the y-intercept of the graph.

e)Find the x-intercept of the graph.

f. Find the domain and the range .

G. Sketch the graph.

8. . A stone is thrown vertically upward. The height can be mode led by h = - 0.2t2 + 2t, where h represents the height of the stone and t

represents time taken in second.

a. What is the maximum height the stone reaches?

b. when the stone reach at maximum height?

Set by Dinkayehu Tafesse