August 2014 Integrated Math 2 – Unit 1 Quiz V2 NAME:

1. A relation is defined by the following points: $\{(-5,7), (4,3), (5,6), (-1,7), (4,12), (-5,13)\}$

(10 marks)

(a) Draw a mapping diagram for this relation.

(3M)

(b) State the range of this relation.

(2M)

(c) Find the value of y when x = 5.

(1M)

(d) Mr. S. decides that this relation is NOT a function. He explains that the reason for his decision is that the output value of 7 results from two different input values of -1 and -5.

i. Is Mr. S. correct in his statement? Explain your reasoning.

(2M)

ii. Is Mr. S. correct in his reasoning? Explain your reasoning.

(2M)

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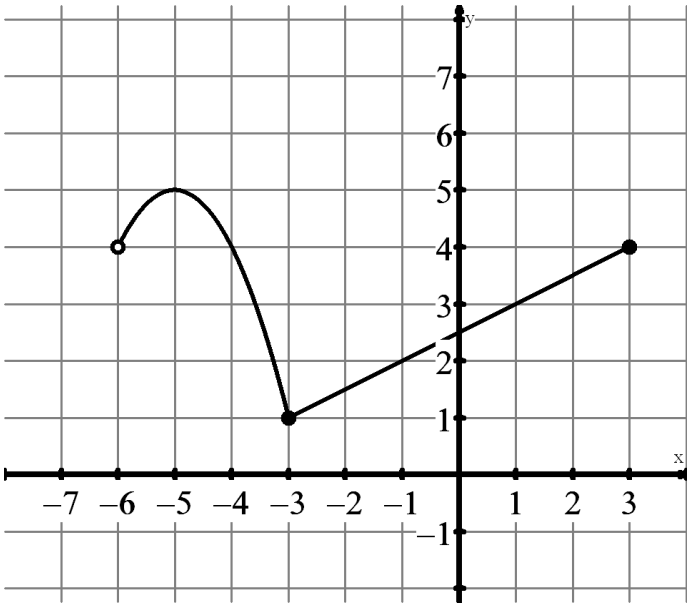
2. The graph of the function $y = H(x)$ is given. Use the graph to answer the following questions:

(10 marks)



(a) Find $y = H(-1)$

(2M)

(b) Write the domain of $y = H(x)$ and use PROPER NOTATION when giving your answer.

(3M)

(c) For what value(s) of x is $H(x) = 5$?

(2M)

(d) For what value(s) of x is $H(x) = 4$?

(2M)

(e) Ms. A. is going to add a new POINT to the graph of this function so that the resulting relation will no longer be a function. Explain where she can add a point.

(2M)

(f) Show on the graph your understanding of the mathematical statement $H(1) = 3$.

(1M)

3. A linear function has the equation $f(x) = 12 - 4x$. The following questions all relate to this linear function. You are being asked to show/explain any work or reasoning in your solutions that leads to your final answers.

(8 marks)

(a) If the domain of $f(x) = 12 - 4x$ was $\{-2, -1, 0, 1\}$, determine the range.

(3M)

(b) Graph this function on the grid below, given your results from Q3(a)

(2M)

(c) If $f(x) = 12 - 4x$ and $f(B) = 28$, determine the value of B.

(3M)

4. An airplane is flying at an altitude of 1570 meters. It starts to go down at a rate of 50 meters every minute. NOTE: You are being asked to show/explain any work or reasoning in your solutions that leads to your final answers.

(7 marks)

(a) From its starting height of 1570 meters, how long does it take for the plane to reach the ground. Show/explain your reasoning.

(2M)

(b) Recall that the domain refers to the independent variable. What would be the independent variable in this plane problem?

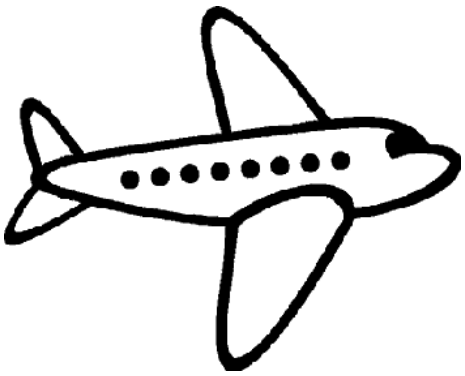
(1M)

(c) What would be a reasonable DOMAIN for this relation? Explain your thinking.

(2M)

(d) What would be a reasonable RANGE for this relation? Explain your thinking.

(2M)



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(a) In this part of the question, I have set the domain of $f(x) = 9 - 3x$ to be $\left\{x \in R \mid -3 \le x < 2\right\}$

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i. In order to determine the range of $f(x)$ on this domain, you need to determine f(-3). Explain why.

ii. What other function value do you need?

iii. Finally, state the range of f(x).