Integrated 2 Math
Algebra Essentials Quiz

Name: _____
Date: _____ Block: ____

Show all work and write all answers on this paper.

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1. Solve for x. **5, 2 marks (K, C)**

a) $3x+12=6(x+3)$

$3x+12=6x+9$

$3=3x$

$1=x$

b) $\frac{3}{4}x+7=16$

$\frac{4}{3}\cdot\frac{3}{4}x=9\cdot\frac{4}{3}$

$x=12$

2. Solve for b: $V=\frac{1}{3}bh$ **2 marks (K)**

$3V=bh$

$\frac{3V}{h}=b$

3. Mrs. Kopp's motorbike uses about 0.03 liters of gasoline for every km traveled.

a) Letting y represent the number of liters of gasoline consumed, and letting x represent the number of kilometers traveled, write an equation in slope-intercept form ($y = mx + b$ form) that models this scenario. **2 marks (A)**

$y=0.03x$

b) Briefly explain why, if you were to graph the above equation, the y-intercept would be 0. **1, 1 marks (T, C)**

Before traveling she has consumed 0 liters of gasoline.

c) Show that the point (200, 6) works in your equation (and thus that your equation is correct). **1, 1 marks (K, C)**

$6=0.03(200)$

$6=6$ ✓

d) Briefly explain the meaning of the point (200, 6). **2 marks (C)**

If she travels 200km, she will consume 6 liters of gasoline.

4. Consider the equation $50x+125y=1000$, which models the cost, in pesos, of lunch for a group of people.

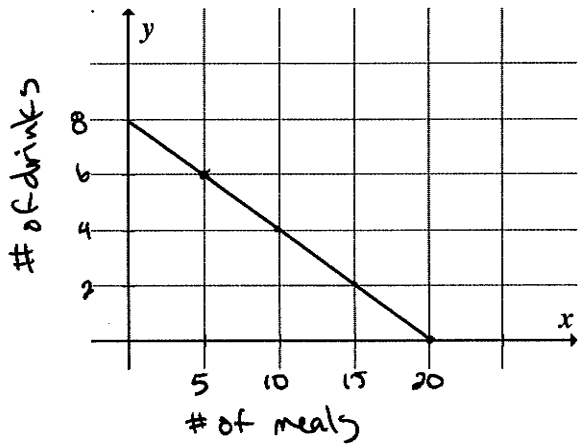
a) If x represents "the number of drinks purchased by the group of people", what could y possibly represent? **1 mark (A)**

y represents #of meals purchased by the group.

b) Complete this data table by adding three valid points that are on the above line. **3 marks (A)**

x	y
5	6
10	4
15	2
20	0

c) Sketch a graph of the line on the axes provided. Be sure to label your scale on the axes. **3 marks (K)**



d) Rewrite the above equation into slope-intercept form ($y = mx + b$ form). **2 marks (K)**

$125y = -50x + 1000$

$y = -\frac{50}{125}x + \frac{1000}{125}$

$y = -\frac{2}{5}x + 8$

e) Explain what the slope means, in the context of this scenario. **2 marks (T)**

Every time 5 more meals are purchased, 2 less drinks are purchased.

f) Briefly explain **one** way in which you could confirm/justify/check your work in questions 4b,c, or d. **1 mark (T)**

In d, I could plug in (5,6) to make sure my equation is still true.

5) Write an equation in standard form ($ax + by = c$) for the line that passes through (1, 7) and (13, 15).

4,1 marks (K,C)

$m = \frac{15-7}{13-1} = \frac{8}{12} = \frac{2}{3}$

$y - 7 = \frac{2}{3}(x-1)$

$3\left(y - 7 = \frac{2}{3}x - \frac{2}{3}\right)$

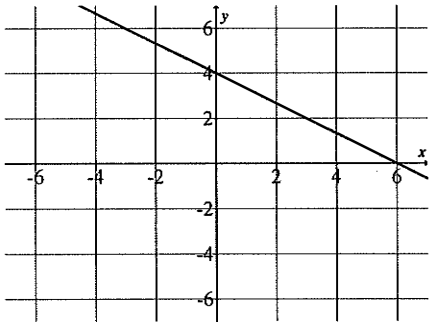
$3y - 21 = 2x - 2$

$2x - 3y = -19$

6) Write an equation (in any form) for this line:

3 marks (A)

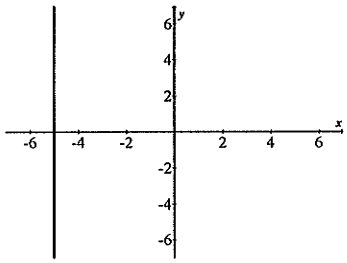
$y = -\frac{2}{3}x + 4$



7) Write an equation for this line:

1 mark (K)

$x = -5$



8) Write an equation for the line that is **parallel** to $y = 3x + 5$ and passes through the point (6, -2).

4 marks (A)

$y + 2 = 3(x - 6)$

9) Jericho is a painter who charges 700 PhP per day of work, plus a one-time fee of 500 PhP for supplies and transportation.

a) Define variables x and y, and write a linear equation to model this scenario.

3, 1 marks (A, C)

x = # of days worked

y = total cost of Jericho

$y = 700x + 500$

b) Use your equation to predict the total cost of hiring Jericho for 8 days. Show all your work.

2 marks (A)

$y = 700(8) + 500$

$y = 5600 + 500$

$y = 6100$

6100 PhP

c) If it cost 9600 PhP to hire Jericho, find out how many days the painting took. Present your solution using **two different methods**, showing all your work for each method.

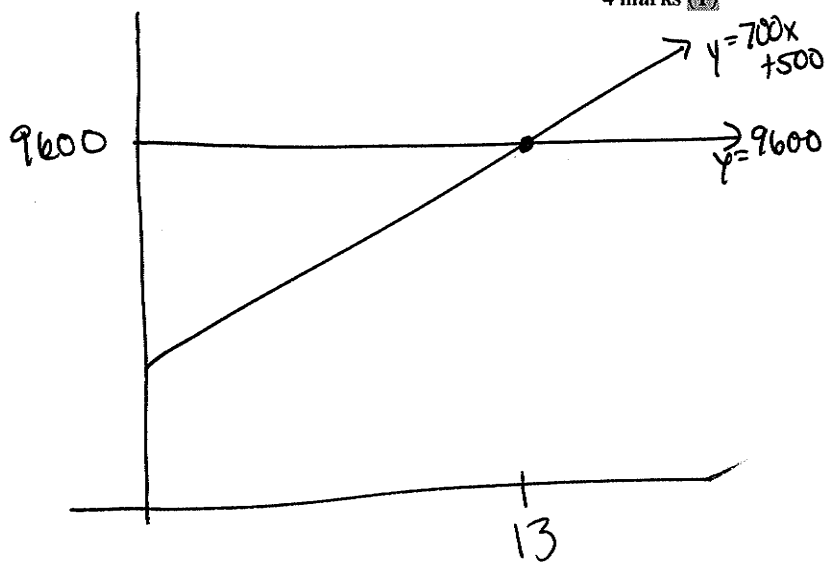
4 marks (T)

$9600 = 700x + 500$

$9100 = 700x$

$13 = x$

13 days



Marks by Criteria				Totals
K	A	C	T	
/18	/18	/8	/8	/52