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# امتحان الفصل الدراسي الأول

## End of Term1 Exam



18  
2019  
العام الدراسي  
Academic Year

إذا سألك أحدهم  
ماذا تريد أن تكون في المستقبل؟  
فقل له أريد أن أكون .....

Student No.			رقم الطالب
Student Name			اسم الطالب
Grade & Stream	8 Elite		الصف والمسار
Subject:	Mathematics		المادة

This table is to be filled by markers

يملأ هذا الجدول بدقة تامة من قبل لجنة التقدير.

رقم السؤال Question No.	الدرجة Mark		المقَدِّر 1 Marker 1	المقَدِّر 2 2 Marker	المراجع Reviser
	رقماً In Figures	كتابةً In Words			
Multiple Choice					
Free Response					
الدرجة المستحقة Allotted Mark					

G8 Elite  
Math Eng

**Section 1: Multiple Choice [25 points]**

A calculator may not be used for questions in this part of the exam.

1. The ages of three sisters are consecutive even integers with the sum of 48. What is the age of the older sister?

- (A) 14 years old
- (B) 16 years old
- (C) 18 years old
- (D) cannot be determined

2. Find the value of  $k$  for which the equation below is an identity.

$$-5x + 14 + k = 4(kx + 3) + 3x$$

- (A) -5
  - (B) -2
  - (C) 2
  - (D) 12
3. A bread company sells cheese bread for AED 8 per piece and zaatar bread for AED 5 per piece. How many pieces of cheese bread should be mixed with 12 pieces of zaatar bread to obtain a mixture that sells for AED 6 per piece?

- (A) 6
- (B) 8
- (C) 10
- (D) 24



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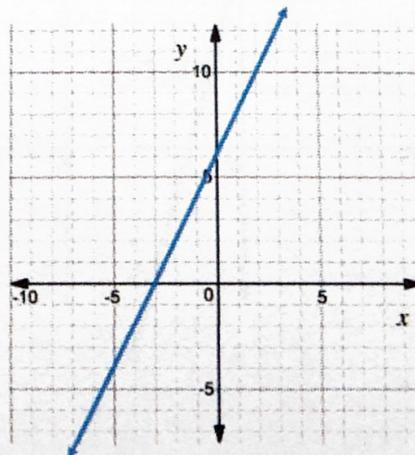
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4. The table below shows the amount of gasoline a car consumes for different distances driven.

Distance (miles)	2	3	4	5
Gasoline (gallons)	0.08	0.12	0.16	0.2

Which of the following explains the rate of change?

- (A) The car consumes 0.04 gallon of gas for each mile traveled.  
 (B) The car travels 0.04 mile for each gallon of gasoline consumed.  
 (C) The car consumes 0.10 gallon of gas for each mile traveled.  
 (D) The car travels 0.10 mile for each gallon of gasoline consumed.
5. Determine if the equation  $a = -\frac{2}{3}c + 6$  is linear. If so, write the equation in standard form.
- (A) linear,  $4c + 2a = 12$   
 (B) linear,  $2c + a = 6$   
 (C) linear,  $2c + 3a = 18$   
 (D) not linear
6. Which of the following equations has the related function graphed below?



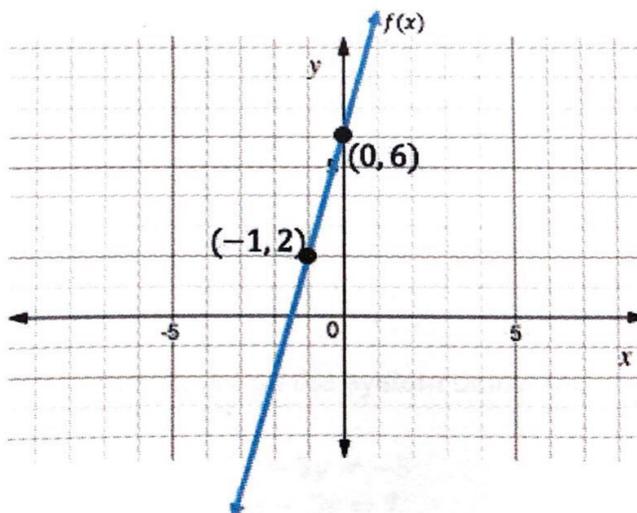
- (A)  $11 + x = 27 + 3x$   
 (B)  $19 + 3x = 13 + x$   
 (C)  $3 - 2x = 15 - 4x$   
 (D)  $14 + x = -18 + 2x$



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7. Which is an equation in slope-intercept form for the line that passes through  $(-4, -1)$  and  $(2, -1)$ ?
- (A)  $y = 6x$   
 (B)  $y = x - 1$   
 (C)  $y = 6$   
 (D)  $y = -1$
8. Which is an equation in slope-intercept form for the line that passes through  $(-3, 3)$  and is perpendicular to the graph of  $2x + 4y = 5$ ?
- (A)  $y = -2x - 3$   
 (B)  $y = -\frac{1}{2}x + \frac{3}{2}$   
 (C)  $y = 2x - 9$   
 (D)  $y = 2x + 9$
9. Which of the following is the inverse of the function graphed below?



- (A)  $f^{-1}(x) = \frac{x+6}{4}$   
 (B)  $f^{-1}(x) = 4x - 6$   
 (C)  $f^{-1}(x) = \frac{x-6}{4}$   
 (D)  $f^{-1}(x) = 4x + 6$



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10. Solve the inequality below.

$$3x - 2(x - 1) \geq 5x - 4(2 + x)$$

- (A)  $\{x|x \leq -\frac{5}{7}\}$   
(B)  $\{x|x \leq \frac{3}{4}\}$   
(C)  $\emptyset$   
(D)  $\{x|x \text{ is a real number}\}$
11. Which value of  $x$  is not a solution to  $4x - 1 < 7$  or  $5 - x \leq 1$ ?  
(A) 0  
(B) 2  
(C) 4  
(D) 5
12. Which inequality has a solution set of  $\{x|x > -2 \text{ or } x < -6\}$ ?  
(A)  $|2x + 8| < 4$   
(B)  $|2x + 8| > 0$   
(C)  $|2x + 8| > 4$   
(D)  $|2x + 8| > -4$
13. Determine the number of solutions that the system below has.

$$x - 5y = -5$$

$$x - 5y = 7$$

- (A) no solution  
(B) exactly one solution  
(C) an infinite number of solutions  
(D) cannot be determined



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## Multiple Choice

14. At the end of a season, a team had 12 more wins than losses. The number of wins they had was one more than two times the number of losses. How many games did the team play during that season?
- (A) 11  
(B) 12  
(C) 23  
(D) 34
15. Mike charges dog owners AED 100 an hour to walk their dogs and AED 50 an hour to play with their dogs. He wants to earn at least AED 300 every week, but he does not want to work more than 6 hours each week. What is a possible solution to describe how many hours Mike can spend walking dogs ( $x$ ) and playing with dogs ( $y$ ) in a week?
- (A) (3, 2)  
(B) (1, 3)  
(C) (4, 3)  
(D) (2, 1)



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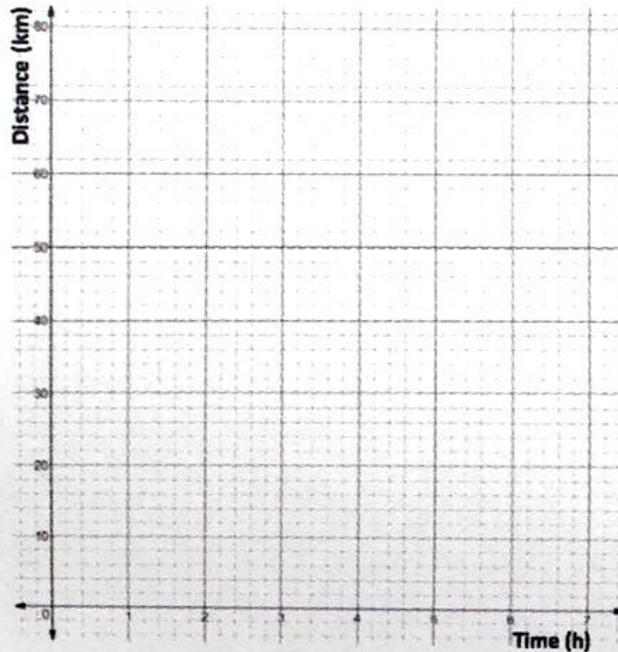
**Section 2: Free Response [25 points]**

A calculator may not be used for questions in this part of the exam. Show ALL your work!

[8 pts] 16. The distance traveled by Malcolm on his bike is detailed in the table below.

Time (hours)	Distance (kilometers)
1	15
2	30
3	45
4	60
5	75

(a) Graph the data.



(b) Does the pattern demonstrate a proportional or nonproportional relationship?

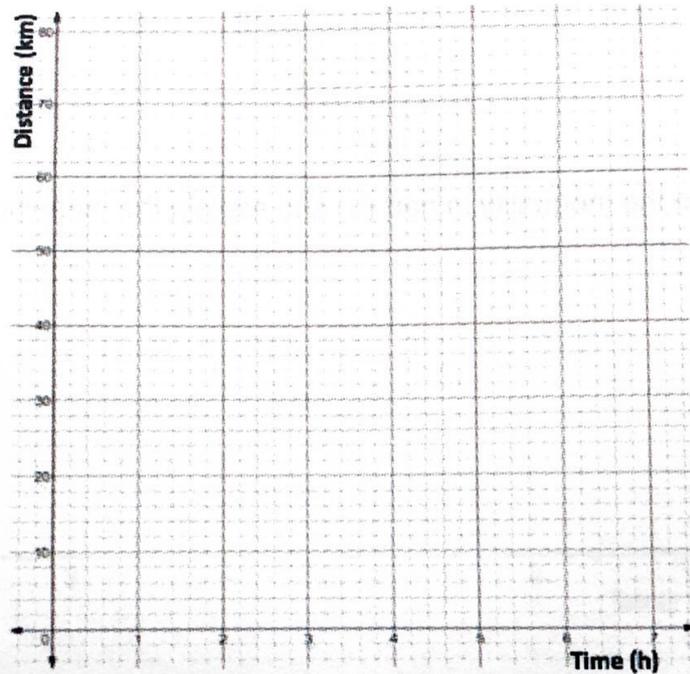
(c) Find the rate of change represented in the table. Use correct units.



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(d) Write an equation in slope-intercept form that relates the time to the distance.

(e) Graph the equation from part (d).



(f) Use the equation in part (d) to determine the distance traveled in 2.5 hours.

(g) According to the graph from part (e), if Sara studies for four hours, how many hours of sleep will she need in order to score more than 80% on the test?

(g) Khalid is riding his bike at the same rate of change as Malcolm. At 1 hour, he travels 18 kilometers. Write an equation in point-slope form that represents Khalid's distance traveled  $y$  in  $x$  hours.



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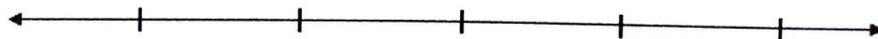
[10 pts] 17. To study in a quiet place, Sara rents a room in the library for a AED 30 fee plus AED 20 per hour of use.

(a) Write an equation that could be used to determine the cost  $c$  of renting the library room for  $h$  hours.

(b) Suppose Sara wants to spend no more than AED 90 on Saturday when she uses the room. Write an inequality for this situation.

(c) Solve the inequality in part (b) and explain the meaning of the solution.

(d) Graph the solution in part (c) on the number line below.



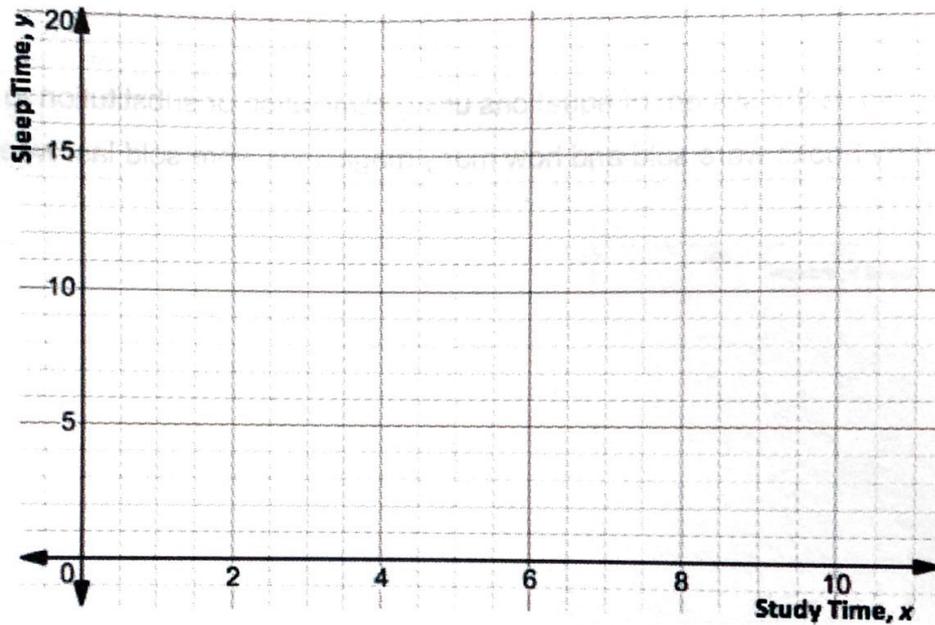
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(e) While studying, Sara wrote the inequality below to show that hours of studying  $x$  and hours of sleeping  $y$  will help her to score more than 80% on the test.

$$10x + 5y > 80$$

Graph the inequality.



(f) According to the graph from part (e), if Sara studies for four hours, how many hours of sleep will she need in order to score more than 80% on the test?



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[7 pts] 18. Each week, a bookstore sells  $x$  books and  $y$  magazines. The store makes a profit of AED 25 on each book sold and AED 5 on each magazine sold.

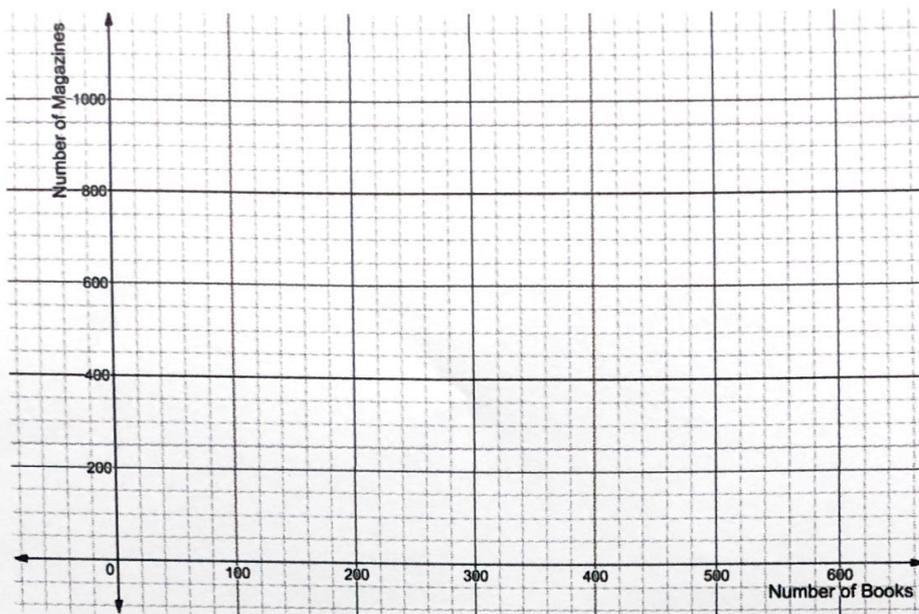
(a) Last week, the bookstore sold a total of 300 books and magazines and made a total profit of AED 5500. Write a system of equations to represent this situation.

(b) Solve the system of equations using elimination or substitution to determine how many books were sold and how many magazines were sold last week.



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(c) Graph the system of equations and identify the solution in part (b).



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