Delta 3
Unit 8 Review (Non-Calculator)
Graphical Solutions

How well did you do:

Graphical Solutions	Score = $\frac{\quad}{49}$	

Topics/skills which need to be revisited:	***Questions from the review***	***Further practice from Delta 3***
• Rearrange equations to find the gradient and y-intercept • Find equation of the line between two points • Identify equations of graphs from a graph drawn	• 1a,b, 2, 6 • 8 • 1c	• P188 Q2, p190 Q5 • P187 Q13, P190 Q3 • P190 Q4
• Solve simple simultaneous equations • Solve more complex simultaneous equations • Solve simultaneous equations graphically	• 3 • 4, 5, 9 • 1d	• P186 Q1, P190 Q1 • P186 Q5,P192 Q16 • P188 Q5
• Solve inequalities by graphing straight lines • Solve inequalities that involve quadratic graphs	• 7 • 10	• P 189 Q4-6, P191 Q11 • P191 Q9,

1 Here are the equations of three lines.

A: $y + 2 = 4x$ **B:** $y = 4x + 3$ **C:** $x + y = -2$

a Write the equations for lines **A** and **C** in the form $y = mx + c$

A: .....

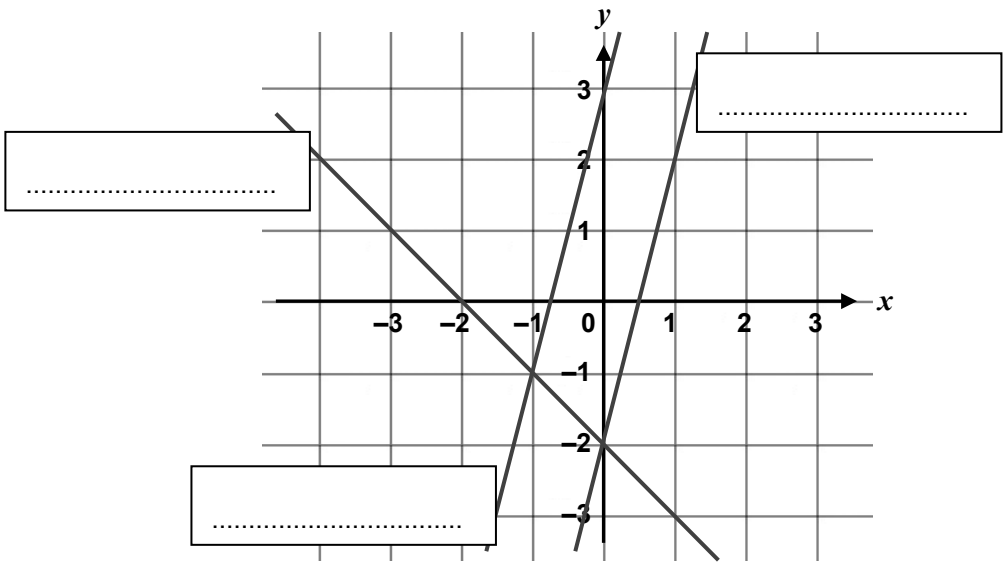
C: .....

b Which two lines have the same gradient? Explain your answer.

.....

.....

c The graph shows the three lines. Label each line on the graph with its equation.



d Using the graph, find the solution of this pair of simultaneous equations.

$y + 2 = 4x$

$x + y = -2$

.....

(6 marks)

2 Write the following equations in the form $y = mx + c$

a $2y + \mathbf{6}x = 10$

.....

b $4y - \mathbf{3}x = -12$

.....

c $\frac{\mathbf{1}}{\mathbf{2}}y + \mathbf{5}x + 12 = 0$

.....

(4 marks)

3 Solve this pair of simultaneous equations by substitution.

$3x + y = 15$

$y = 2x$

.....

(3 marks)

4

a Write an algebraic equation for each of the following

3 cups of tea and 2 cups of coffee cost 108AED

.....

5 cups of tea and 2 cups of coffee cost 148AED

.....

b Calculate the cost of one cup of tea and one cup of coffee

tea .....

coffee .....

(5 marks)

5 Solve this pair of simultaneous equations.

$7x + 4y = 13$

$2x - 4y = 14$

.....

(4 marks)

6

a Circle the pairs of lines have the same y-intercept

i) $y = 2x + 4$ $\quad y - 3x + 4 = 0$

ii) $y = 2x + 4$ $\quad y + 2x - 4 = 0$

iii) $y = 2x + 4$ $\quad 2y = -6x + 8$

b State whether each pair of lines are parallel or perpendicular

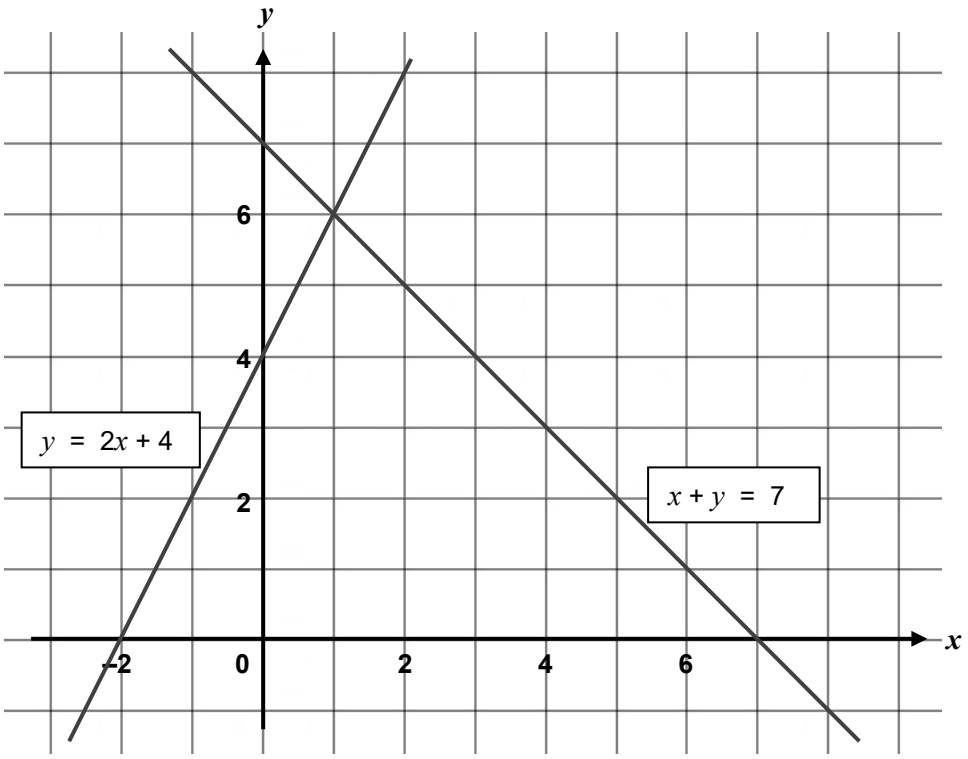
i) $y = x + 4$ $\quad y + x = 3$ ……

ii) $y - 2x + 1 = 0$ $\quad y - 2x - 4 = 0$ ……

iii) $y = 3x + 6$ $\quad y = -\frac{1}{3}x + 8$ ……

(5 marks)

7 The graph shows the lines $x + y = 7$ and $y = 2x + 4$



a On the graph shade the regions

i $x + y \geq 7$ Label this region **P**

ii $y \leq 2x + 4$ Label this region **Q**

b What can you say about the region where the shading overlaps?

……

……

(3 marks)

8 Find the equation of the line that passes through the points (4, 17) and (1, 2) in the form

$ay + bx + c = 0$

……

(5 marks)

9 Solve this pair of simultaneous equations.

$3x + 4y = 14$

$2x + 3y = 9$

……

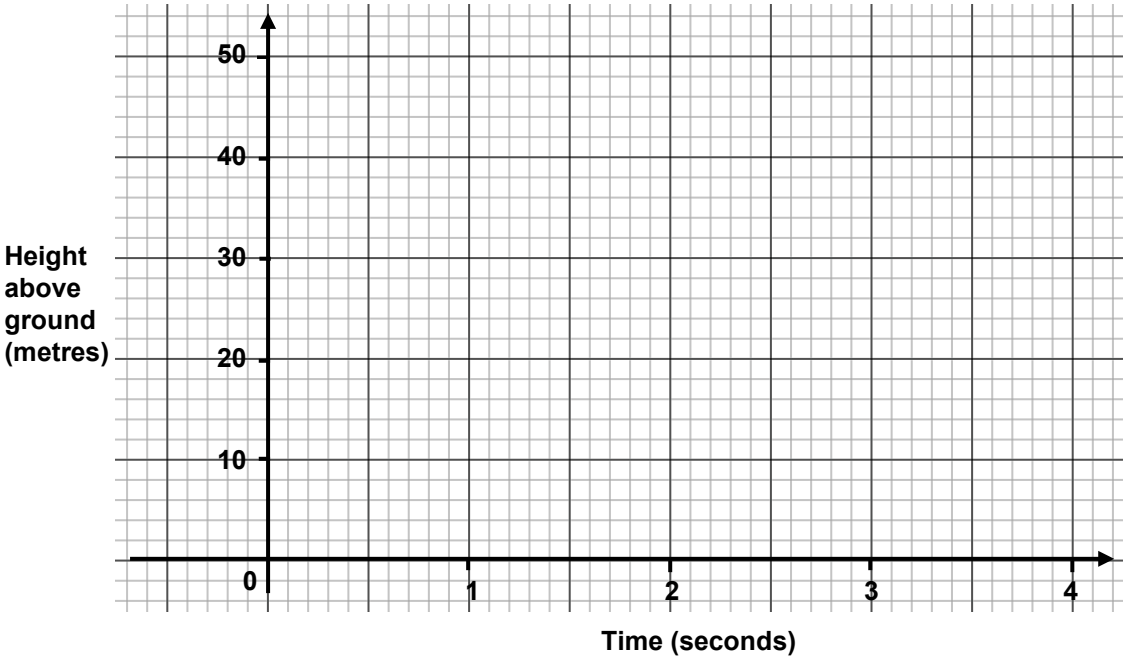
(5 marks)

10 A ball was thrown in the air.

a The equation $y = 5(4x - x^2)$ models the path of the ball.

Complete this table of values and draw the path of the ball on the graph.

x	0	1	2	3	4
y				15	0



b An arrow was fired 2 seconds after the ball was thrown.

Initially, the flight of the arrow was modelled by the straight line $y = 20x - 40$

Plot the path of the arrow on the grid above.

c **i** At what time might they collide?

.....seconds

ii At what height from the ground would they meet or pass each other?

..... m

d Shade in the region on the graph that satisfies both of the following inequalities

$y \geq 20x - 40$

$y \leq 5(4x - x^2)$

(9 marks)