

All questions should be submitted by 4pm on Friday, 14 May. Assignments can be submitted at your tutorial, or to the MATH1040/7040 assignment boxes (4th floor Priestley Building #67). Make sure that your name, student number, tutorial group and your tutor's name are on each sheet of your answers. You do not need a cover sheet nor do you need to include this question sheet. Solutions will be distributed in class later.

1. Answer each of the following questions, showing all working.

- (a) Find the gradient and y -intercept of the line $-y + 8 + x = 6y - 2 - 10x$.
- (b) Find the equation of the straight line with gradient $m = -2$ passing through the point $(6, -10)$.
- (c) Find the equation of the straight line passing through the points $(-9, -4)$ and $(6, -1)$.
- (d) Find the equation of the line parallel to $11y - 2x - 5 = -10 + 10y$ and passing through the point $(8, 15)$.
- (e) Find the equation of the line parallel to $0 = 5 - 4x$ and passing through the point $(-7, 1)$.
- (f) Find the equation of the line perpendicular to $16x + 56 = 8y$ and passing through the point $(20, -11)$.
- (g) Does the line $0 = 80 + 24x - 8y$ pass through the point $(-6, 4)$?
- (h) Find the distance between the points $(\sqrt{20}, -6)$ and $(\sqrt{5}, -6)$.

2. Given the linear equation $-2y - 6 = 0$:

- (a) Find the y -intercept of the line.
- (b) Find the x -intercept of the line.
- (c) Sketch the graph of the line.

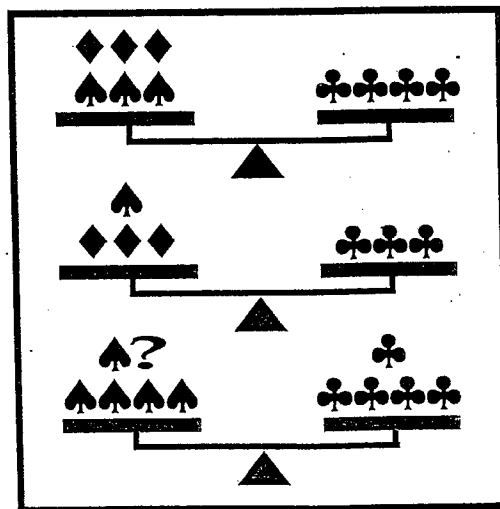
3. Answer the following questions:

- (a) Do the lines $14x + 8y = -168$ and $-5x - 3y = 61$ intersect? If so, find the point of intersection.
- (b) Do the lines $81x = -63 + 9y$ and $-90x - 70 + 10y = 0$ intersect? If so, find the point of intersection.

4. North Melbourne defeated Melbourne in Saturday's AFL match. The score was North Melbourne 15 goals 14 behinds 104 points to Melbourne 12 goals 6 behinds 78 points. Let the value of a goal be g and the value of a behind be b . Using simultaneous equations find the value of a goal and a behind.

BONUS QUESTION (4 marks)

The first two scales below are in perfect balance. How many diamonds (on the left-hand side) will be needed to balance the third scale? Show all working.



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