

(18) Shading Inequalities

WORKING AT D/E

(1) (a) Sketch the lines $x = 2$ and $y = x$ on the same set of coordinate axes.

(b) Hence, shade the region where $x < 2$ and $x \geq y$

(2) (a) Sketch the graphs of $y = 3$ and $y = 2x^2$ on the same set of coordinate axes.

(b) Hence, shade the region where $2x^2 < 3$

WORKING AT B/C

(1) (a) Sketch the graphs of $x + y = 6$ and $y = 10 - x^2$ on the same set of coordinate axes.

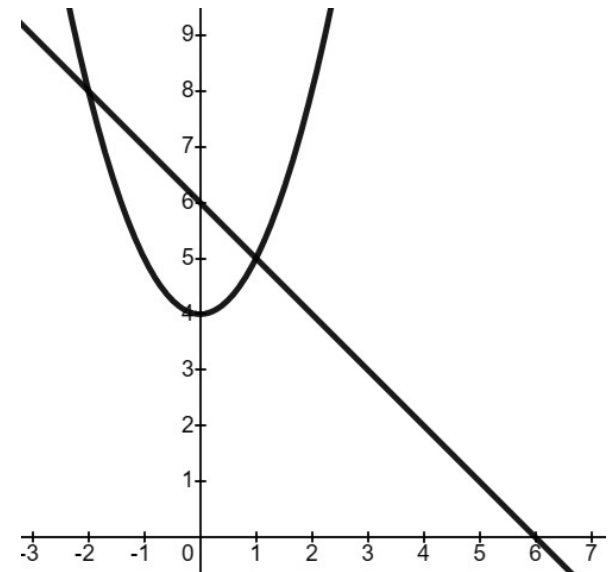
(b) Hence, shade the region where $6 - x < 10 - x^2$

(2) Shade the region on a graph where $x + 5 < x^2$

(3) By sketching two different graphs, show that there is no region that satisfies $x^2 + 5 < \frac{1}{4}x - 3$

WORKING AT A*/A

(1) The diagram below shows the graph of $y = x^2 + a$ and the graph of $y = b - x$.



(a) Write down the value of the constants a and b .

(b) Using your answer to part (a), on the graph above, shade the region that satisfies:

$$x^2 + x - 2 \leq 0$$

You must show full workings.