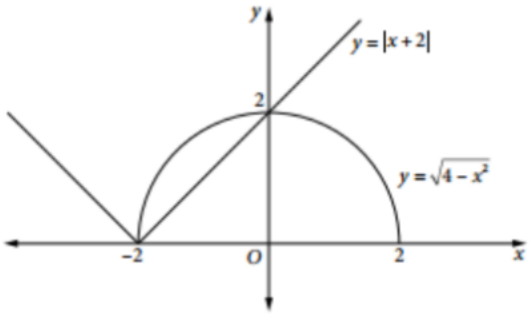
FURTHER WORK WITH FUNCTIONS - CHAPTER REVIEW

1 The diagram shows the graphs of $y=|x+2|$ and $y=\sqrt{4-x^2}$.



The solution of $\sqrt{4-x^2} \leq |x+2|$ is:

A $0 \leq x \leq 2$

B $-2 \leq x \leq 0$

C $x=-2, 0 \leq x \leq 2$

D $x \geq 0$

2 Solve the following inequalities.

(a) $\frac{2}{1-x} > 1$ **(b)** $\frac{1}{x+3} \leq \frac{2}{x}$

3 Sketch the region of the Cartesian plane bounded by curves $y = \frac{1}{x}$, $x = 1$, $x = 3$ and the x-axis.

4 Sketch the region of the Cartesian plane that satisfies $y \geq x^2 - 1$ and $y \leq 1 - |x|$.

5 Sketch the region of the Cartesian plane bounded by the curves $y \geq x^2 - 4$ and $y \leq 4 - x^2$.

6 Show that the straight lines $2x + y = 20$ and $x + y = 14$ intersect at $(6, 8)$. Hence sketch the region of the Cartesian plane for which $y \geq 20 - 2x$, $y \leq 14 - x$ and $y \geq 0$ are all true.

7 Sketch the region in the number plane defined by $(x-1)^2+(y-1)^2<1$ and $x>1$.

8 Sketch the region of the Cartesian plane bounded by the curves $y=x^2-4$ and $y=|x|+1$.