

A pupil graphs the following relations. Which relation is many-to-one?

(A) $x^2 + y^2 = 4$

(C) $y = x^3 + 3$

(B) $y = \sqrt{4 - x^2}$

(D) $y = 2x - 4$

What is the domain of the function $y = \frac{1}{\sqrt{7-x}}$?

(A) $(-\infty, 7)$

(C) $(7, \infty)$

(B) $(-\infty, 7]$

(D) $[7, \infty)$

Which one of the following is NOT true about the function $f(x) = |6 - 2x|$?

(A) $f(x) \geq 0$ for all x

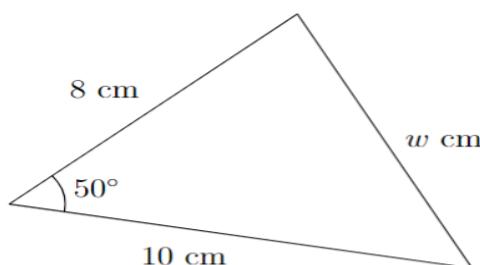
(C) There is a local minimum at $x = 3$

(B) The graph of f is continuous everywhere (D) The graph of f is differentiable everywhere

Solve $|2x - 1| > 5$.

[2]

The diagram shows a triangle with sides of length w cm, 8 cm and 10 cm along with an angle of 50° .



Use the cosine rule to calculate the value of w , correct to two significant figures.

Solve $\sqrt{3} \tan x = -1$ on the domain $0 \leq x \leq 3\pi$.

3

A bag contains 8 green balls and 6 white balls. Two balls are selected at random without replacement.

Complete a tree diagram and calculate the probability of selecting two balls of different colours.

In the space below, sketch the graphs of $y = x^2 - 6$ and $y = x$. Label the coordinates of any x or y intercepts and any points of intersection of the graphs.

Find the values of x for which $x^2 - 6 > x$.