



**MX 10** The graph of the function  $y = \sin^{-1}(x - 4)$  is transformed by being dilated horizontally  
**SP** with a scale factor of 2 and then translated to the right by 1.  
What is the equation of the transformed graph?

1

A.  $y = \sin^{-1}\left(\frac{x-9}{2}\right)$

B.  $y = \sin^{-1}\left(\frac{x-10}{2}\right)$

C.  $y = \sin^{-1}(2x - 6)$

D.  $y = \sin^{-1}(2x - 5)$

**A**

- horizontal dilation of factor of 2:

$$\therefore \frac{1}{a} = 2$$

$$a = \frac{1}{2}$$

$$\therefore y = \sin^{-1}\left(\frac{x}{2} - 4\right)$$

- translated to the right by 1:

$$\therefore y = \sin^{-1}\left(\frac{x-1}{2} - 4\right)$$

$$y = \sin^{-1}\left(\frac{x-1-8}{2}\right)$$

$$y = \sin^{-1}\left(\frac{x-9}{2}\right)$$

\* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by NESA.

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