

4. Solve each of the following equations:

(i) $\log_2 x = -1$ (ii) $\log_3 \sqrt{27} = x$ (iii) $\log_x 2 = 2$ (iv) $\log_2(0.5) = x$

$$b^n = a \Leftrightarrow n = \log_b a$$

$$(i) \log_2 x = -1 \Leftrightarrow a = 2^{-1} = \frac{1}{2}$$

$$(ii) \log_3 \sqrt{27} = x \Rightarrow x = \frac{3}{2}$$

use calculator

$$(iii) \log_x 2 = 2 \Leftrightarrow x^2 = 2$$

$$x = \pm\sqrt{2}$$

$$(iv) \log_2(0.5) = x$$

use calculator

$$\Rightarrow x = -1$$