

Module 5D : Exponents, Logarithms, and Miscellaneous Topics
SECTION 1 : Solve an equation in quadratic form.

EXERCISE 7

Solve $w^4 - 6w^2 + 5 = 0$

SOLUTION

$$w^4 - 6w^2 + 5 = 0 \Rightarrow (w^2 - 5)(w^2 - 1) \Rightarrow (w^2 - 5)(w^2 - 1)$$

$$w^2 - 5 = 0 \text{ or } w^2 - 1 = 0$$

$$w^2 = 5 \text{ or } w^2 = 1$$

$$w = \pm\sqrt{5} \text{ or } w = \pm 1$$

SECTION 2 : Solve exponential equations.

EXERCISE 8

Solve: $3^{2x-5} \cdot 2 = 6$

SOLUTION:

$$3^{2x-5} \cdot 2 = 6 \Rightarrow 3^{2x-5} = \frac{6}{2} \Rightarrow 3^{2x-5} = 3 \Rightarrow 2x-5=1 \Rightarrow 2x=6 \Rightarrow x=3$$

SECTION 3 : Solve radical equations.

EXERCISE 9

Solve a) $\sqrt{1-x} = 6$

b) $\sqrt{1-x} = -6$

SOLUTION:

a) $\sqrt{1-x} = 6 \Rightarrow \sqrt{1-x}^2 = 6^2 \Rightarrow 1-x = 36 \Rightarrow -x = 35 \Rightarrow x = -35$

b) $\sqrt{1-x} = -6$ No Solution, since a principal even root may not be negative.

MODULE 5D - ASSESSMENT

_____8. Solve $w^4 - 8w^2 + 7 = 0$

- A** $w = -1, 1$ **B** $w = -1, 1, \sqrt{7}, -\sqrt{7}$ **C** $w = \sqrt{7}, -\sqrt{7}$
D none of these **E** I do not know

_____9. Solve $2^{5-2x} \cdot 2 = 8$

- A** 1 **B** $-\frac{3}{2}$ **C** 2 **D** $\frac{3}{2}$ **E** I do not know

_____10. Solve: $\sqrt{1-x} = 6$

- A** -35 **B** -37 **C** 37 **D** 35 **E** I do not know