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

\[
w^4 - 6w^2 + 5 = 0 \implies (w^2 - 5)(w^2 - 1) \implies (w^2 - 5)(w^2 - 1) = 0
\]

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

\[w^2 = 5 \text{ or } w^2 = 1\]

\[w = \pm \sqrt{5} \text{ or } w = \pm 1\]
SECTION 2: Solve exponential equations.

EXERCISE 8

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

SOLUTION:

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

SECTION 3: Solve radical equations.

EXERCISE 9

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

SOLUTION:

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

b) $\sqrt{1-x} = -6$ No Solution, since a principal even root may not be negative.
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 \( 2^{3-2x} \cdot 2 = 8 \)

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