***Section* 1.6 − Other Types of Equations**

The numbers of solutions to a polynomial with ***n*** degree, where ***n*** is Natural Number, are ***n*** solutions.

**Solving a Polynomial Equation by factoring**

***Example***

Solve: 4*x*4 = 12*x*2

***Solution***

4*x*4 - 12*x*2 = 0

4*x*2 (*x*2 – 3) = 0

 

 

 

***Example***

Solve: 2 *x*3 + 3 *x*2 = 8*x* + 12

***Solution***







 

 

 

***Equations that Are Quadratic in Form***











***Example***

Solve: 

***Solution***

 

  

  

Solve for *U * 









 

***Example***

Solve: 

***Solution***

 





 

 

 

 

 

 

***Example***

Solve: 

***Solution*** ***Or factor***

 

  

 

 

 

 

**Solving a *Radical* Equation**

***Power Property***

If *P* and *Q* are algebraic expressions, then every solution of the equation  is also a solution of the equation ; for any positive integer *n*.

***Example***

Solve 

***Solution***











 

 

***Check***

 

 

 

 

 is the only solution

***Solving Radical Equations of the Form ***

Assume that *m* and *n* are positive integers

If *m* is ***even***:  ⇒  ⇒ 

If *m* is ***odd***:  ⇒  ⇒ 

***Example***

Solve: 

***Solution***











***Example***

Solve: 

***Solution***











***Solving an Absolute Value Equation***

If c is a positive real number and X represents any algebraic expression, then |*X*| = *c* is equivalent to

*X* = *c* or *X* = − *c*

|*X*| = *c* → *X* = *c* *or* *X* = − *c*

**Properties of Absolute Value**

1. For b > 0,  if and only if (*iff*) 
2.  *iff* 

For any positive number b:

1. *iff* 
2. *iff* 

***Example***

Solve: |2*x* – 1| = 5

***Solution***

 

2***x*** = 6 2***x*** = −4

***x*** = 3 ***x*** = −2

*Solutions*: 

***Example***

Solve: 4|1 − 2*x*| − 20 = 0

***Solution***

4|1 − 2*x*| = 20

|1 − 2*x*| = 5

1 − 2*x* = 5 1 − 2*x* = −5

−2*x* = 4 −2*x* = −6

*x* = −2 *x* = 3

*Solutions*: 

***Exercise Section* 1.6 − Other Types of Equations**

(**1 – 112**) Solve

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