***Solution Section* 3.5 – Exponential and logarithmic Equations**

***Exercise***

Solve the equation: 

***Solution***





***Exercise***

Solve the equation: 

***Solution***





***Exercise***

Solve the equation: 

***Solution***



***Exercise***

Solve the equation: 

***Solution***



***Exercise***

Solve the equation: 

***Solution***



***Exercise***

Solve the equation: 

***Solution***



***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***





***Exercise***

Solve the equation: 

***Solution***





 *add 7 on both sides*

 *Divide by 3*



***Exercise***

Solve the equation: 

***Solution***





2*x* = 4



***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***







***Exercise***

Solve the equation: 

***Solution***







***Exercise***

Solve the equation: 

***Solution***











***Exercise***

Solve the equation: 

***Solution***

 ***Convert to Log***





***Exercise***

Solve the equation: 

***Solution***















***Exercise***

Solve the equation: 

***Solution***













***Exercise***

Solve the equation: 

***Solution***











***Exercise***

Solve the equation: 

***Solution***













***Exercise***

Solve the equation: 

***Solution***

 ***Convert to Log***

***Exercise***

Solve the equation: 

***Solution***











***Exercise***

Solve the equation: 

***Solution***











***Exercise***

Solve the equation: 

***Solution***











***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***











***Exercise***

Solve the equation: 

***Solution***













***Exercise***

Solve the equation: 

***Solution***













***Exercise***

Solve the equation: 

***Solution***













***Exercise***

Solve the equation: 

***Solution***













***Exercise***

Solve the equation: 

***Solution***

 ***‘*ln*’ both sides***

 ***Power Rule***

 ***Distribute***







***Exercise***

Solve the equation: 

***Solution***

 ***‘*ln*’ both sides***

 ***Power Rule***

















***Exercise***

Solve the equation: 

***Solution***













***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***















***Exercise***

Solve the equation: 

***Solution***

















***Exercise***

Solve the equation: 

***Solution***





 ***Solve for*** 

 

 



***Exercise***

Solve the equation: 

***Solution***





 ***Solve for*** 

 





***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***

 ***Convert to Log***

***Exercise***

Solve the equation: 

***Solution***

 ***Convert to Log***



***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***

 ***Convert to Log***







***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***







 (*Only solution*)

***Exercise***

Solve the equation 

***Solution***









The solutions are: 

***Exercise***

Solve the equation: 

***Solution***





***Exercise***

Solve the equation:  ****

***Solution***









***Exercise***

Solve the equation: 

***Solution***

 *Natural Log both sides*

 



***Exercise***

Solve the equation: 

***Solution***





 *Divide by e*









***Exercise***

Solve the equation: 

***Solution***

 



***Exercise***

Solve the equation without using the calculator: 

***Solution***

 ***Solve for*** 

 



***Exercise***

Solve the equation: 

***Solution***















***Exercise***

Solve the equation: 

***Solution***





 *Divide by e*

 *Natural Log both sides*







***Exercise***

Solve the equation: 

***Solution***









***Exercise***

Solve the equation: 

***Solution***







***Exercise***

Solve the equation: 

***Solution***





 ***Check***: 

***Exercise***

Solve the equation: 

***Solution***







***Exercise***

Solve the equation: 

***Solution***





 

***Exercise***

Solve the equation: 

***Solution***









***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***











***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***







 ***Check:*** 

***Exercise***

Solve the equation: 

***Solution***



















***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***





 



***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***











***Check***: 

∴ 

***Exercise***

Solve the equation: 

***Solution***





 



***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***









***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***











***Check***: 

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***









***Check***: 

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***











***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***









***Check***: 

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 

















∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 

















∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 









∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 







 ***Convert to exponential***

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

 ***Convert to exponential***

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

 ***Convert to exponential***

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

 ***Convert to exponential***

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

 ***Convert to exponential***



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***





∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***







∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***













***Check***: 

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***









***Check***: 

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***









***Check***: 

∴ ***No*** ***Solution***

***Exercise***

Solve the equation: 

***Solution***









***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation 

***Solution***



 ***Convert to Exponential Form***







***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation 

***Solution***















∴ ***Solution***: 

***Exercise***

Solve the equation 

***Solution***

















∴ ***No solution***

***Exercise***

Solve the equation 

***Solution***











***Check***: 

∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 

 ***Convert to exponential form***



 ***Solve for x***





∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***













***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 











∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 











∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 











∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 







 



∴ ***Solution***: 

***Exercise***

Solve the equation 

***Solution***

***Domain***: 









∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 











∴ ***Solution***: 

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 

















**∴ *No solution***

***Exercise***

Solve the equation: 

***Solution***

***Domain***: 



















∴ ***Solution***:  is the only solution

***Exercise***

Solve the equation 

***Solution***

***Domain***: 















***Check***: 



∴ ***Solution***: 

***Exercise***

Solve the equation 

***Solution***

***Domain***: 

















∴ ***Solution***: 

***Exercise***

Solve for *t* using logarithms with base *a*: 

***Solution***













***Exercise***

Solve for *t* using logarithms with base *a*: 

***Solution***











