***Solution Section* 2.2 – Function Operations**

***Exercise***

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***Domain***: 

***Exercise***

Find the domain of 

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***Domain***: 

***Exercise***

Let  and . Find each of the following and give the domain

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***Solution***

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***Domain***: 

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***Exercise***

Let  and . Find each of the following and give the domain

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***Solution***

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***Domain***: 

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***Exercise***

Let  and . Find each of the following and give the domain

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***Solution***

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***Domain***: 

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***Exercise***

Let  and . Find each of the following and give the domain

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***Solution***

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***Domain****:* 

***Exercise***

Given that  and 

1. Find 
2. Find the domain of 
3. Find: 

***Solution***

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***Domain*** = 

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***Exercise***

Given that  and 

1. Find  and its domain
2. Find  and its domain

***Solution***

1. 



***Domain***: 

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*x* ≠ −2

***Domain***: 

***Exercise***

Let  and . Find , ,, and 

***Solution***

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1. 





***Exercise***

Find  and the domain of 

***Solution***









***Domain***: 









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***Domain***:  

***Exercise***

Find  and the domain of 

***Solution***













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***Domain***: 

***Exercise***

Find  of  and 

***Solution***

* 1. 





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***Exercise***

For the function *f* given by , find the difference quotient 

***Solution***











***Exercise***

For the function *f* given by , find the difference quotient 

***Solution***









***Exercise***

For the function *f* given by , find the difference quotient 

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For the function *f* given by , find the difference quotient 

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For the function *f* given by , find the difference quotient 

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For the function *f* given by , find the difference quotient 

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For the function *f* given by , find the difference quotient 

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***Exercise***

For the function *f* given by , find the difference quotient 

***Solution***









***Exercise***

Given the function: . Find and simplify the difference quotient 

***Solution***







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***Exercise***

For the function *f* given by , find the difference quotient 

***Solution***











***Exercise***

For the function *f* given by , find the difference quotient 

***Solution***











***Exercise***

For the function *f* given by , find the difference quotient ****

***Solution***

















***Exercise***

For the function f given by, find the difference quotient 

***Solution***

















***Exercise***

For the given function , find the difference quotient 

***Solution***











***Exercise***

For the given function , find the difference quotient 

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For the given function , find the difference quotient 

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***Exercise***

For the given function , find the difference quotient 

***Solution***





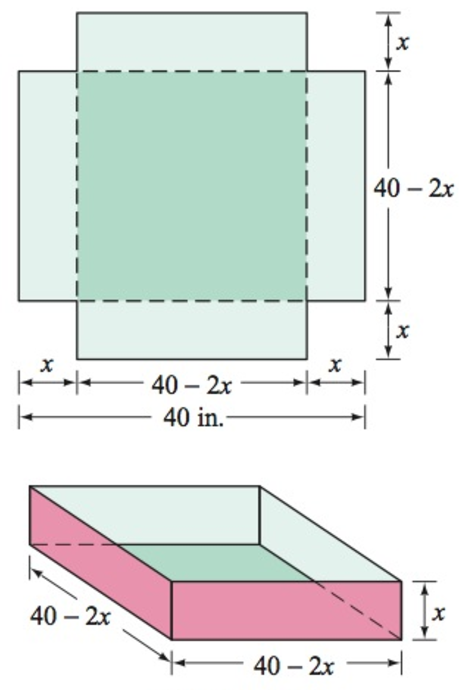






***Exercise***

An open box is to be made from a square piece of cardboard that measures 40 *inches* on each side, to construct the box, squares that measure *x* *inches* on each side are cut from each corner of the cardboard.

1. Express the volume *V* of the box as a function of *x*.
2. Determine the domain of *V*.

***Solution***

1. 





1. 



***Domain***: 

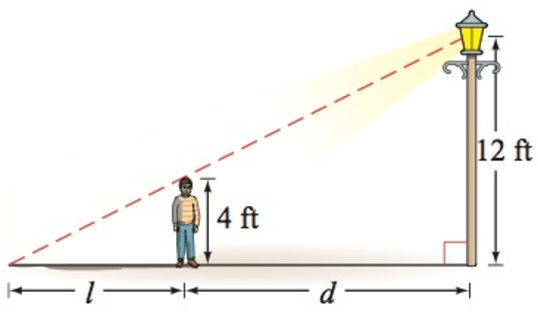
***Exercise***

A child 4 *feet* tall is standing near a street lamp that is 12 *feet* high. The light from the lamp casts a shadow.

1. Find the length *l* of the shadow as a function of the distance *d* of the child from the lamppost.
2. What is the domain of the function?
3. What is the length of the shadow when the child is 8 *feet* from the base of the lamppost?

***Solution***

1. 





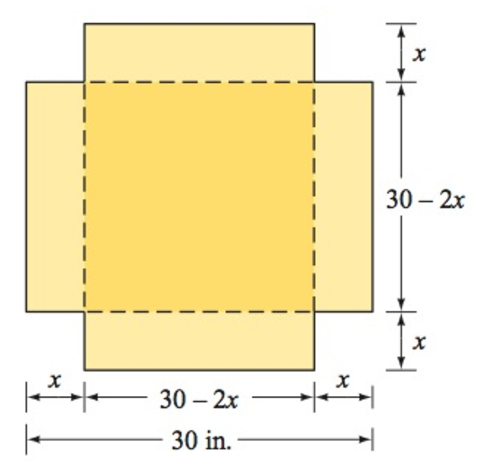


1. ***Domain***: 
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***Exercise***

An open box is to be made from a square piece of cardboard with the dimensions 30 *inches* by 30 *inches* by cutting out squares of area  from each corner.

1. Express the volume *V* of the box as a function of *x*.
2. Determine the domain of *V*.

***Solution***

1. 





1. 



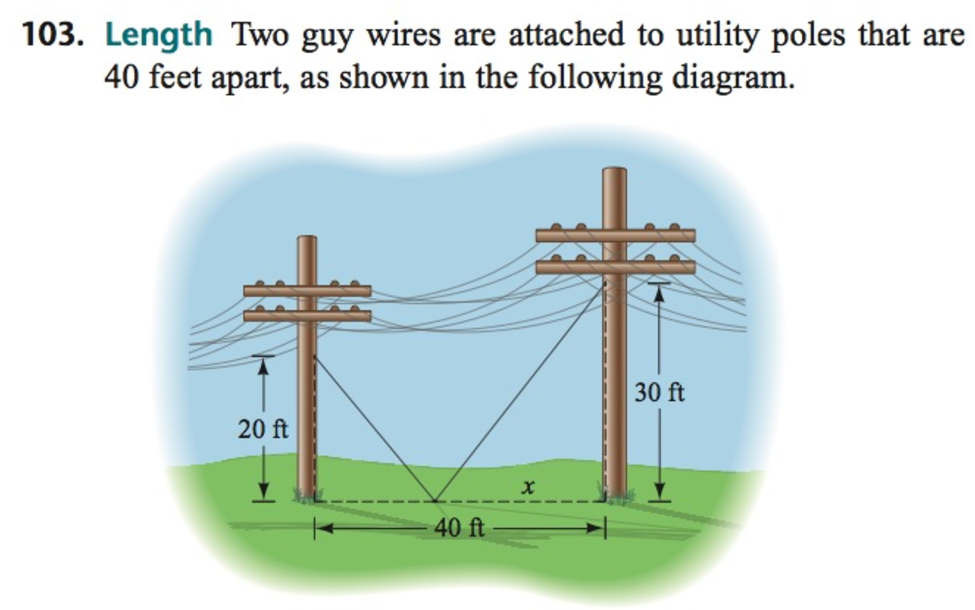
***Domain***: 

***Exercise***

Two guy wires are attached to utility poles that are 40 *feet* apart.

1. Find the total length of the two guy wires as a function of *x*.
2. What is the domain of this function?

***Solution***

1. 











1. ***Domain***: 

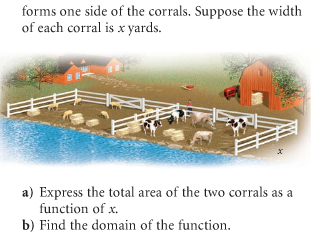
***Exercise***

A rancher has 360 *yards* of fencing with which to enclose two adjacent rectangular corrals, one for sheep and one for cattle. A river forms one side of the corrals. Suppose the width of each corral is *x* yards.

1. Express the total area of the two corrals as a function of *x*.
2. Find the domain of the function.

***Solution***

***a***) 









***b*)** 









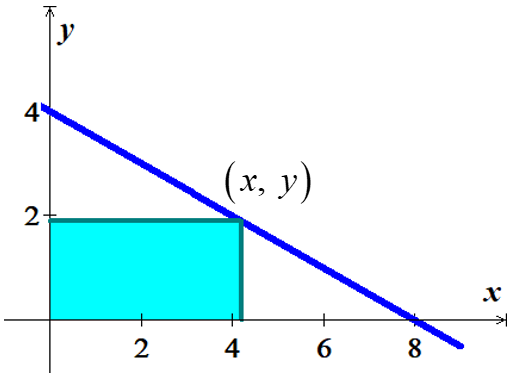
***Domain***: 

***Exercise***

A rectangle is bounded by the *x*- and *y-axis* of 

1. Find the area of the rectangle as a function of *x*.
2. What is the domain of this function.

***Solution***

1. ****

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***Domain***: 