Check for Mistakes in this Word Problem: target-leap

**Directions:** Write a function which takes in the target’s x-coordinate and makes a player leap by returning an x-coordinate that is double the original x-coordinate.

**Contract and Purpose Statement**

Every contract has three parts ...

; target-leap : number → number

; Takes the x-coordinate and returns a new one, multiplied by 2

**Examples**

Write some examples of your function in action...

(EXAMPLE( target-leap 100 ) (200) )

<table>
<thead>
<tr>
<th>function name</th>
<th>input(s)</th>
<th>what the function produces</th>
</tr>
</thead>
<tbody>
<tr>
<td>target-leap</td>
<td>100</td>
<td>(200)</td>
</tr>
</tbody>
</table>

(EXAMPLE( target-leap 40 ) (200) )

<table>
<thead>
<tr>
<th>function name</th>
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<th>what the function produces</th>
</tr>
</thead>
<tbody>
<tr>
<td>target-leap</td>
<td>40</td>
<td>(200)</td>
</tr>
</tbody>
</table>

**Definition**

Write the definition, giving variable names to all your input values...

(define( leap x-coor )

<table>
<thead>
<tr>
<th>function name</th>
<th>variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>leap</td>
<td>x-coor</td>
</tr>
</tbody>
</table>

(* x 5) 

what the function does with those variables
Check for Mistakes in this Word Problem: circle-area

**Directions:** Write a function that returns the area of a circle given its diameter.

**Contract and Purpose Statement**

Every contract has three parts...

; circle-area : number → number

; Given the diameter, multiply pi by radius squared to get the area

**Examples**

Write some examples of your function in action...

(EXAMPLE( circle-area 10 ) (* (sqr (/ 10 2)) pi) )

(EXAMPLE( circle-area 50 ) (* (sqr (/ 50 2)) pi) )

**Definition**

Write the definition, giving variable names to all your input values...

(define( area diameter )

(* (sqr diameter) pi) )

what the function does with those variables
Check for Mistakes in this Word Problem: check-total

**Directions:** It is customary to tip 20% on a bill at a restaurant. Write a function that takes the total cost of the food and returns the new total including tip.

**Contract and Purpose Statement**
Every contract has three parts ...

; check-total : number → number

; Returns the total of a check with 20% of the cost added

what does the function do?

**Examples**
Write some examples of your function in action...

(EXAMPLE( (total 20) ) (20 (+ (0.2 * 20) 20)) )

(EXAMPLE( (total 56.67) )

(56.67 (+ (0.2 * 56.67) 56.67))

what the function produces

**Definition**
Write the definition, giving variable names to all your input values...

(define( check-total  food-total )

(* (+ 0.2 food-total) food-total)

what the function does with those variables
Check for Mistakes in this Word Problem: enough-carpet?

Directions: You have 100 square feet of carpet to put down in your room. Write a function that takes in the length and width of your room and returns true if you have enough carpet and false if you don’t.

Contract and Purpose Statement

Every contract has three parts ...

; enough-carpet? : number number → number

; Given length and width of a room, is the area <= 100 sq feet?

what does the function do?

Examples

Write some examples of your function in action...

(EXAMPLE enough-carpet? (10 15) (<= (* 10 15) 100) )

(function name input(s) what the function produces)

(EXAMPLE enough-carpet? (9 10) (<= (* 9 10) 100) )

(function name input(s) what the function produces)

Definition

Write the definition, giving variable names to all your input values...

(define enough-carpet? length width )

(function name variables)

(<= (* length width) 100) )

what the function does with those variables
Check for Mistakes in this Word Problem: enough-cash?

Directions: You go the store with $1.50 in your pocket. Write a function which takes in the price of an item and returns true if you have enough money to buy the item and false if you do not.

Contract and Purpose Statement
Every contract has three parts ...

;   enough-cash?  :  number  →  boolean

; Check to see if the item costs less than 1.50

what does the function do?

Examples
Write some examples of your function in action...

(EXAMPLE( enough-cash? 2.50 ) (>= 1.50 2.50) )

(EXAMPLE( enough-cash? 9.00 ) (< gum 150) )

Definition
Write the definition, giving variable names to all your input values...

(define( enough-cash? item )

(<= item 1.5) )

what the function does with those variables
Check for Mistakes in this Word Problem: equal-length?

**Directions:** Write a function that takes in two strings and returns true if their lengths are equal and false otherwise.

**Contract and Purpose Statement**
Every contract has three parts ...

; equal-length? : string string → boolean

; Given two strings, check if they are the same length

**Examples**
Write some examples of your function in action...

(EXAMPLE (equal-length? "yes" "no")

( = (string-length "yes") (string-length "no"))

what the function produces

(EXAMPLE (equal-length? "dog" "cat")

( = (string-length "dog") (string-length "cat"))

what the function produces

**Definition**
Write the definition, giving variable names to all your input values...

(define (equal-length? string1 string2)

( =

what the function does with those variables)
Check for Mistakes in this Word Problem: flower-name

Directions: You are putting together a list of flowers in your garden based on their color. You have red roses, purple tulips, and yellow daisies. Write a function that takes in the color of a flower and returns the name of the flower.

Contract and Purpose Statement

Every contract has three parts ...

;  flower-name  :  string  →  string
       function name          domain          range

;  Takes the name of the flower and returns its color
       what does the function do?

Examples

Write some examples of your function in action...

(EXAMPLE(  flower-name  "red"  )  "rose"  )
       function name          input(s)          what the function produces

(EXAMPLE(  flower-name  "tulip"  )  "purple"  )
       function name          input(s)          what the function produces

(EXAMPLE(  flower-name  "yellow"  )  "daisy"  )
       function name          input(s)          what the function produces

Definition

Write the definition, giving variable names to all your input values...

(define(  flower-name  color  )
       function name          variables

       (cond

           [(string=?  color  "red")  "rose"  ]

           [(string=?  color  "purple")  "tulip"  ]

           [(string=?  color  "yellow")  "daisy"  ]

           [else  "That flower isn’t in the garden!"

       ])))
Check for Mistakes in this Word Problem: scale-image

Directions: Write a function which takes an image and a string, representing what to scale the image by. The function should return a smaller image if the string is ‘smaller’ and a bigger image if the string is ‘bigger’.

Contract and Purpose Statement

Every contract has three parts ...

<table>
<thead>
<tr>
<th>function name</th>
<th>domain</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>scale-image</td>
<td>image string</td>
<td>image</td>
</tr>
</tbody>
</table>

; Make the image bigger or smaller, depending on the given string

what does the function do?

Examples

Write some examples of your function in action...

(EXAMPLE( scale-image (circle 5 "solid" "red") "bigger")
  ; what the function produces
  (circle 10 "solid" "red") )

(EXAMPLE( scale-triangle (triangle 20 "solid" "blue") "smaller")
  ; what the function produces
  (triangle 10 "solid" "blue") )

Definition

Write the definition, giving variable names to all your input values...

(define( scale-image original-image scale-factor )
  (cond
    ; what the function produces
    [(string=? scale-factor "bigger") (scale 2 original-image)]
    [(string=? scale-factor "smaller") (scale 0.5 original-image)]
    [else original-image]))