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<!DOCTYPE html>
<head>
  <meta charset="UTF-8">
  <title>Triangulo Rectangulo</title>
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css"
integrity="sha384-
1q8mTJOASx8j1Au+a5WDVnPi2lkFfwwEAa8hDDdjZlpLegxhjVME1fgjWPGmkzs7"
crossorigin="anonymous">
</head>
<body>
  <div class="container">
    <div class="page-header">
      <h1 id="nombre"></h1>
      <h4>TRIANGULO RECTANGULO</h4>
    </div>
    <div class="col-md-12">
      <div class="col-md-6">
        <form name="FORM2">
          <table style="border:none; border-collapse:collapse">
            <tr><td>A<input type="text" size="3" name="A"
onfocus="this.value=""></td></tr><tr><td>a<input type="text" size="3" name="a"
onfocus="this.value=""></td></tr>
            <tr><td>B<input type="text" size="3" name="B"
onfocus="this.value=""></td><tr><td>b<input type="text" size="3" name="b"
onfocus="this.value=""></td></tr>
            <tr><td>C<input type="text" size="3" name="C"
onfocus="this.value=""></td></tr><tr><td>c<input type="text" size="3" name="c"
onfocus="this.value=""></td></tr>
            <tr><td>H<input type="text" size="3" name="H"
onfocus="this.value=""></td><tr>
          <div style="margin-left:180px">
            
          </div>
          </table>

          <input type="button" name="inicial" value="Resolver" onclick="iniciar()"
class="btn btn-primary" />
        </form>
      </div>
      <div class="col-md-6">
        <form name="FORM3">
          <textarea name="codegenerator" rows="19" cols="40"></textarea>
          <input type="button" name="reset" value="Limpiar" onclick="resetval()"
class="btn btn-pimary">

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</form>
</div>
</div>
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<SCRIPT LANGUAGE="JavaScript">
var persona = prompt("Ingresa tu nombre", "");
if (persona != null && persona != "") {
    document.getElementById("nombre").innerHTML="Bienvenido " + persona + "!";
}
function resetval(){
document.FORM2.a.value = "";
document.FORM2.A.value = "";
document.FORM2.b.value = "";
document.FORM2.B.value = "";
document.FORM2.h.value = "";
document.FORM3.codegenerator.value = "";
}
function iniciar() {
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if (document.FORM2.a.value >= 1 && document.FORM2.b.value >= 1)//calculo de la
hipotenusa a partir de los catetos
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{
var catettoa = document.FORM2.a.value;
var catetob = document.FORM2.b.value;
var catettoa2 = Math.pow(catettoa, 2);
var catetob2 = Math.pow(catetob, 2);
var sumacatetos = catettoa2 + catetob2;
var hipotenusa = Math.sqrt(catettoa2 + catetob2);
var senoA = catettoa / hipotenusa;
var arcsenoA = Math.asin(senoA);
var rad = (180 * arcsenoA) / Math.PI;
var anguloA = 90 - rad;
var cosenoA = Math.cos(arcsenoA);
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document.FORM3.codegenerator.value =
'h =  $\hat{s}(a^2 + b^2) \backslash r'$ 
+ 'h =  $\hat{s}(' + catettoa + '^2 + ' + catetob + '^2) \backslash r'$ 
+ 'h =  $\hat{s}(' + catettoa2 + ' + ' + catetob2 + ') \backslash r'$ 
+ 'h =  $\hat{s}' + sumacatetos + ' \backslash r'$ 
+ 'h = ' + hipotenusa + ' \backslash r'
+ 'A = arc sen ( a / h ) \backslash r'
+ 'A = arc sen ( ' + catettoa + ' / ' + hipotenusa + ' ) \backslash r'
+ 'A = arc sen ' + senoA + ' \backslash r'
+ 'A = ' + rad + ' \backslash r'
+ 'B = 90 - A \backslash r'
+ 'B = 90 - ' + rad + ' \backslash r'
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+ 'B = ' + anguloA + ' \r';
document.FORM2.h.value = hipotenusa;
document.FORM2.a.value = "";
document.FORM2.b.value = "";
}
if (document.FORM2.a.value >= 1 && document.FORM2.h.value >= 1)//calculo del
cateto b a partir del cateto a y la hipotenusa
{
var hipotenusa = document.FORM2.h.value;
var catetoa = document.FORM2.a.value;
var senoA = catetoa / hipotenusa;
var arcsenoA = Math.asin(senoA);
var rad = (180 * arcsenoA) / Math.PI;
var anguloA = 90 - rad;
var cosenoA = Math.cos(arcsenoA);
var catetob = hipotenusa * cosenoA;

document.FORM3.codegenerator.value =
'sen A = a / h \r'
+ 'sen A = ' + catetoa + ' / ' + hipotenusa + ' \r'
+ 'sen A = ' + senoA + ' \r'
+ 'A = arc sen ( a / h ) \r'
+ 'A = arc sen ( ' + catetoa + ' / ' + hipotenusa + ' ) \r'
+ 'A = arc sen ' + senoA + ' \r'
+ 'A = ' + rad + ' \r'
+ 'B = 90 - A \r'
+ 'B = 90 - ' + rad + ' \r'
+ 'B = ' + anguloA + ' \r'
+ 'b = h * cos A \r'
+ 'b = h * cos ' + senoA + ' \r'
+ 'b = h * ' + cosenoA + ' \r'
+ 'b = ' + hipotenusa + ' * ' + cosenoA + ' \r'
+ 'b = ' + catetob + ' \r';
}
if (document.FORM2.b.value >= 1 && document.FORM2.h.value >= 1)//calculo del
cateto a a partir del cateto b y la hipotenusa
{
var hipotenusa = document.FORM2.h.value;
var catetob = document.FORM2.b.value;
var senoB = catetob / hipotenusa;
var arcsenoB = Math.asin(senoB);
var rad = (180 * arcsenoB) / Math.PI;
var anguloB = 90 - rad;
var cosenoB = Math.cos(arcsenoB);
var catetoa = hipotenusa * cosenoB;

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document.FORM3.codegenerator.value =
'sen B = a / h \r'
+ 'sen B = ' + catetob + ' / ' + hipotenusa + ' \r'
+ 'sen B = ' + senoB + ' \r'
+ 'B = arc sen ( b / h ) \r'
+ 'B = arc sen ( ' + catetob + ' / ' + hipotenusa + ' ) \r'
+ 'B = arc sen ' + senoB + ' \r'
+ 'B = ' + rad + ' \r'
+ 'A = 90 - B \r'
+ 'A = 90 - ' + rad + ' \r'
+ 'A = ' + anguloB + ' \r'
+ 'a = h * cos B \r'
+ 'a = h * cos ' + senoB + ' \r'
+ 'a = h * ' + cosenoB + ' \r'
+ 'a = ' + hipotenusa + ' * ' + cosenoB + ' \r'
+ 'a = ' + catetob + ' \r';
}
if (document.FORM2.A.value >= 1 && document.FORM2.h.value >= 1)//calculo de
los catetos a partir del angulo agudo A y la hipotenusa
{
var hipotenusa = document.FORM2.h.value;
var anguloA = document.FORM2.A.value;
var anguloB = 90 - anguloA;
var rad = (Math.PI / 180) * anguloA;
var senoA = Math.sin(rad);
var catetob = hipotenusa * senoA;
var cosenoA = Math.cos(rad);
var catetob = hipotenusa * cosenoA;

document.FORM3.codegenerator.value =
'B = 90 - B \r'
+ 'B = 90 - ' + anguloA + ' \r'
+ 'B = ' + anguloB + ' \r'
+ 'a = h * sen A \r'
+ 'a = h * sen ' + anguloA + ' \r'
+ 'a = h * ' + senoA + ' \r'
+ 'a = ' + hipotenusa + ' * ' + senoA + ' \r'
+ 'a = ' + catetob + ' \r'
+ 'b = h * cos A \r'
+ 'b = h * cos ' + anguloA + ' \r'
+ 'b = h * ' + cosenoA + ' \r'
+ 'b = ' + hipotenusa + ' * ' + cosenoA + ' \r'
+ 'b = ' + catetob + ' \r';
}
if (document.FORM2.B.value >= 1 && document.FORM2.h.value >= 1)//calculo de
los cateto b a partir del angulo agudo B y la hipotenusa

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{
  var hipotenusa = document.FORM2.h.value;
  var anguloB = document.FORM2.B.value;
  var anguloA = 90 - anguloB;
  var rad = (Math.PI / 180) * anguloB;
  var senoB = Math.sin(rad);
  var catetob = hipotenusa * senoB;
  var cosenoB = Math.cos(rad);
  var catetoa = hipotenusa * cosenoB;

  document.FORM3.codegenerator.value =
    'A = 90 - B \r'
  + 'A = 90 - ' + anguloB + ' \r'
  + 'A = ' + anguloA + ' \r'
  + 'b = h * sen B \r'
  + 'b = h * sen ' + anguloB + ' \r'
  + 'b = h * ' + senoB + ' \r'
  + 'b = ' + hipotenusa + ' * ' + senoB + ' \r'
  + 'b = ' + catetob + ' \r'
  + 'a = h * cos B \r'
  + 'a = h * cos ' + anguloB + ' \r'
  + 'a = h * ' + cosenoB + ' \r'
  + 'a = ' + hipotenusa + ' * ' + cosenoB + ' \r'
  + 'a = ' + catetoa + ' \r';
}
if (document.FORM2.b.value >= 1 && document.FORM2.B.value >= 1)//calculo del
cateto a, a partir del angulo agudo A y el cateto b
{
  var catetoB = document.FORM2.b.value;
  var anguloB = document.FORM2.B.value;
  var anguloC = Number(anguloB);
  var rad = (Math.PI/180)*anguloC;
  var anguloC = 90 - anguloB;
  var hipotenusa = catetoB/(Math.sin(rad));
  document.FORM3.codegenerator.value =
    'SUMA = A + B \r'
  + 'SUMA = ' + anguloC + ' \r'
  + 'SUMA = ' + hipotenusa + ' \r'
  + 'SUMA = ' + catetoa + ' \r';
}
}
// End -->
</script>
</body>
</html>

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