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<pre style='text-align: left; border: 1px dashed #008DEF; line-height:
18px; padding: 15px; font-size: 13px; font-family:'Courier New', Courier,
monospace; overflow: auto; '><span style='color:#3F7F5F'>//Shawnak
Shivakumar
</span><span style='color:#3F7F5F'>//
</span><span style='color:#3F7F5F'>//December 22, 2020
</span><span style='color:#3F7F5F'>//
</span><span style='color:#3F7F5F'>//This program gives the missing info
in a triangle using tangents, cosines, sin, arcs, radians, and degrees.
</span><span style='color:#3F7F5F'>//
</span><span style='color:#3F7F5F'>//VIEWERS - COPY AFTER THIS LINE TILL
THE END AND PASTE IT HERE:
</span><span style='color:#3F7F5F'>//https://www.onlinegdb.com/. Select
HTML As the language and click run! Enter your //numbers into the console
and enjoy!
</span>style='font-weight:bold;color:#7B0052; '>import</span> java.util.*;
    <span style='font-weight:bold;color:#7B0052; '>public</span> <span
style='font-weight:bold;color:#7B0052; '>class</span> Main <span
style='font-weight:bold;color:#D3171B'>{</span>
    <span style='font-weight:bold;color:#7B0052; '>public</span> <span
style='font-weight:bold;color:#7B0052; '>static</span> <span
style='font-weight:bold;color:#7B0052; '>void</span> main(String
args[])<span style='font-weight:bold;color:#D3171B'>{</span>
        Scanner scan = <span
style='font-weight:bold;color:#7B0052; '>new</span> Scanner(System.in);
        System.out.println(<span style='color:#2A00FF'>"Enter 1 if you want to
run the Using Sin, Cos, Tan To Find Missing Lengths of Triangle Program,
or 2 is you don't!"</span>);
        <span style='font-weight:bold;color:#7B0052; '>int</span> ans =
scan.nextInt();
        Scanner in = <span style='font-weight:bold;color:#7B0052; '>new</span>
Scanner(System.in);
        <span style='font-weight:bold;color:#7B0052; '>while</span> (ans != 2)
<span style='font-weight:bold;color:#D3171B'>{</span>
            System.out.println(<span style='color:#2A00FF'>"This program uses
Right Triangle  $\triangle ABC$ , where  $\angle B = 90^\circ$  and AC is the
hypotenuse."</span>);
            System.out.println(<span style='color:#2A00FF'>"Please enter EXACTLY 2
information (excluding the b = 90*), if you do not know the number, type
0."</span>);

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System.out.println(<span style='color:#2A00FF'>"&lt;A = "</span>);

    <span style='font-weight:bold;color:#7B0052;'>float</span> a =
scan.nextFloat();
    <span style='font-weight:bold;color:#7B0052;'>while</span> (a >=
90) <span style='font-weight:bold;color:#D3171B'>{</span>
        System.out.println(<span style='color:#2A00FF'>"This number is
invalid. Angle a has to be less than 90*. Try again. &lt;A = "</span>);
        a = scan.nextFloat();
    <span style='font-weight:bold;color:#D3171B'>}</span>
    System.out.println(<span style='color:#2A00FF'>"&lt;B = 90*"</span>);
    <span style='font-weight:bold;color:#7B0052;'>float</span> b = 90;
    <span style='font-weight:bold;color:#7B0052;'>if</span> (a > 0)
<span style='font-weight:bold;color:#D3171B'>{</span>
        System.out.println(<span style='color:#2A00FF'>"Side AC =
"</span>);
        <span style='font-weight:bold;color:#7B0052;'>float</span> AC =
scan.nextFloat();
        <span style='font-weight:bold;color:#7B0052;'>if</span> (AC >
0) <span style='font-weight:bold;color:#D3171B'>{</span>
            <span style='font-weight:bold;color:#7B0052;'>float</span> c =
90 - a;
            <span style='font-weight:bold;color:#7B0052;'>float</span> AB = AC *
(<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.sin(c*Math.PI/180);
            <span style='font-weight:bold;color:#7B0052;'>float</span> BC =
(<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.sqrt((<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.pow(AC,2) - (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(AB,2)));
            <span style='font-weight:bold;color:#7B0052;'>float</span>
ABrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.round(AB*100.0)/100;
            <span style='font-weight:bold;color:#7B0052;'>float</span>
BCrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.round(BC*100.0)/100;
            System.out.println(<span style='color:#2A00FF'>"Results: Angle A =
"</span> + a);
            System.out.println(<span style='color:#2A00FF'>"Angle B =
90"</span>);

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        System.out.println(<span style='color:#2A00FF'>"Angle C = "</span>
+ c);
        System.out.println(<span style='color:#2A00FF'>"AC = "</span> +
AC);
        System.out.println(<span style='color:#2A00FF'>"AB = "</span> +
ABrounded);
        System.out.println(<span style='color:#2A00FF'>"BC = "</span> +
BCrounded);
        <span style='font-weight:bold;color:#D3171B'>}</span>
        <span style='font-weight:bold;color:#7B0052;'>else</span> <span
style='font-weight:bold;color:#D3171B'>{</span>
            System.out.println(<span style='color:#2A00FF'>"Side AB =
"</span>);
            <span style='font-weight:bold;color:#7B0052;'>float</span> AB
= scan.nextFloat();
            <span style='font-weight:bold;color:#7B0052;'>if</span> (AB
> 0) <span style='font-weight:bold;color:#D3171B'>{</span>
                <span style='font-weight:bold;color:#7B0052;'>float</span>
c = 90 - a;
                AC = AB / (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.cos(a*Math.PI/180);
                <span style='font-weight:bold;color:#7B0052;'>float</span> ACrounded =
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(AC*100.0)/100;
                <span style='font-weight:bold;color:#7B0052;'>float</span> BC = (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.sqrt((<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(AC,2) -
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.pow(AB,2));
                <span style='font-weight:bold;color:#7B0052;'>float</span> BCrounded =
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(BC*100.0)/100;
                System.out.println(<span style='color:#2A00FF'>"Results: Angle A =
"</span> + a);
                System.out.println(<span style='color:#2A00FF'>"Angle B =
90"</span>);
                System.out.println(<span style='color:#2A00FF'>"Angle C = "</span>
+ c);
                System.out.println(<span style='color:#2A00FF'>"AC = "</span> +
ACrounded);

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        System.out.println(<span style='color:#2A00FF'>"AB = "</span> +
AB);
        System.out.println(<span style='color:#2A00FF'>"BC = "</span> +
BCrounded);
        <span style='font-weight:bold;color:#D3171B'>></span>
        <span style='font-weight:bold;color:#7B0052;'>else</span>
<span style='font-weight:bold;color:#D3171B'>{</span>
            System.out.println(<span style='color:#2A00FF'>"Side BC =
"</span>);
            <span style='font-weight:bold;color:#7B0052;'>float</span> BC =
scan.nextFloat();
            <span style='font-weight:bold;color:#7B0052;'>float</span>
c = 90 - a;
            AC = BC / (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.cos(c *
Math.PI/180);
            <span style='font-weight:bold;color:#7B0052;'>float</span>
ACrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(AC*100.0)/100;
            AB = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.sqrt((<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.pow(AC,2) - (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(BC,2));
            <span style='font-weight:bold;color:#7B0052;'>float</span>
ABrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(AB*100.0)/100;
            System.out.println(<span style='color:#2A00FF'>"Results: Angle A =
"</span> + a);
            System.out.println(<span style='color:#2A00FF'>"Angle B =
90"</span>);
            System.out.println(<span style='color:#2A00FF'>"Angle C = "</span>
+ c);
            System.out.println(<span style='color:#2A00FF'>"AC = "</span> +
ACrounded);
            System.out.println(<span style='color:#2A00FF'>"AB = "</span> +
ABrounded);
            System.out.println(<span style='color:#2A00FF'>"BC = "</span> +
BC);
            <span style='font-weight:bold;color:#D3171B'>></span>
            <span style='font-weight:bold;color:#D3171B'>></span>

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        <span style='font-weight:bold;color:#D3171B'>}</span>
        <span style='font-weight:bold;color:#7B0052;'>else</span> <span
style='font-weight:bold;color:#7B0052;'>if</span> (a <= 0) <span
style='font-weight:bold;color:#D3171B'>{</span>
            System.out.println(<span style='color:#2A00FF'>"<C = "</span>);
            <span style='font-weight:bold;color:#7B0052;'>float</span> c =
scan.nextFloat();
            <span style='font-weight:bold;color:#7B0052;'>while</span> (c >=
90) <span style='font-weight:bold;color:#D3171B'>{</span>
                System.out.println(<span style='color:#2A00FF'>"This number is
invalid. Angle c has to be less than 90*. Try again. <C = "</span>);
                c = scan.nextFloat();
            <span style='font-weight:bold;color:#D3171B'>}</span>
            <span style='font-weight:bold;color:#7B0052;'>if</span> (c > 0)
<span style='font-weight:bold;color:#D3171B'>{</span>
                System.out.println(<span style='color:#2A00FF'>"Side AC =
"</span>);
                <span style='font-weight:bold;color:#7B0052;'>float</span> AC =
scan.nextFloat();
                <span style='font-weight:bold;color:#7B0052;'>if</span> (AC >
0) <span style='font-weight:bold;color:#D3171B'>{</span>
                    a = 90 - c;
                    <span style='font-weight:bold;color:#7B0052;'>float</span> AB = AC
* (<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.sin(c*Math.PI/180);
                    <span style='font-weight:bold;color:#7B0052;'>float</span> BC =
(<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.sqrt((<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.pow(AC,2) - (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(AB,2)));
                    <span style='font-weight:bold;color:#7B0052;'>float</span>
ABrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.round(AB*100.0)/100;
                    <span style='font-weight:bold;color:#7B0052;'>float</span>
BCrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>
Math.round(BC*100.0)/100;
                    System.out.println(<span style='color:#2A00FF'>"Results: Angle A =
"</span> + a);
                    System.out.println(<span style='color:#2A00FF'>"Angle B =
90"</span>);

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        System.out.println(<span style='color:#2A00FF'>"Angle C = "</span>
+ c);
        System.out.println(<span style='color:#2A00FF'>"AC = "</span> +
AC);
        System.out.println(<span style='color:#2A00FF'>"AB = "</span> +
ABrounded);
        System.out.println(<span style='color:#2A00FF'>"BC = "</span> +
BCrounded);
        <span style='font-weight:bold;color:#D3171B'></span>
        <span style='font-weight:bold;color:#7B0052;'>else</span> <span
style='font-weight:bold;color:#D3171B'>{</span>
            System.out.println(<span style='color:#2A00FF'>"Side AB =
"</span>);
            <span style='font-weight:bold;color:#7B0052;'>float</span> AB
= scan.nextFloat();
            <span style='font-weight:bold;color:#7B0052;'>if</span> (AB
> 0) <span style='font-weight:bold;color:#D3171B'>{</span>
                a = 90 - c;
                AC = AB / (<span
style='font-weight:bold;color:#7B0052;'>float</span>)
Math.sin(c*Math.PI/180);
                <span style='font-weight:bold;color:#7B0052;'>float</span> BC = (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.sqrt((<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(AC,2) -
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.pow(AB,2));
                <span style='font-weight:bold;color:#7B0052;'>float</span> ACrounded =
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(AC*100.0)/100;
                <span style='font-weight:bold;color:#7B0052;'>float</span>
BCrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(BC*100.0)/100;
                System.out.println(<span style='color:#2A00FF'>"Results: Angle A =
"</span> + a);
                System.out.println(<span style='color:#2A00FF'>"Angle B =
90"</span>);
                System.out.println(<span style='color:#2A00FF'>"Angle C = "</span>
+ c);
                System.out.println(<span style='color:#2A00FF'>"AC = "</span> +
ACrounded);

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        System.out.println(<span style='color:#2A00FF'>"AB = "</span> +
AB);

        System.out.println(<span style='color:#2A00FF'>"BC = "</span> +
BCrounded);

        <span style='font-weight:bold;color:#D3171B'></span>
        <span style='font-weight:bold;color:#7B0052;'>else</span>
<span style='font-weight:bold;color:#D3171B'>{</span>
            System.out.println(<span style='color:#2A00FF'>"Side BC =
"</span>);

            <span style='font-weight:bold;color:#7B0052;'>float</span>
BC = scan.nextFloat();

            AC = BC / (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.cos(c *
Math.PI/180);

            <span style='font-weight:bold;color:#7B0052;'>float</span>
ACrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(AC*100.0)/100;

            AB = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.sqrt((<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.pow(AC,2) - (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(BC,2));

            <span style='font-weight:bold;color:#7B0052;'>float</span>
ABcrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(AB*100.0)/100;

            a = 90 - c;

            System.out.println(<span style='color:#2A00FF'>"Results: Angle A =
"</span> + a);

            System.out.println(<span style='color:#2A00FF'>"Angle B =
90"</span>);

            System.out.println(<span style='color:#2A00FF'>"Angle C = "</span>
+ c);

            System.out.println(<span style='color:#2A00FF'>"AC = "</span> +
ACrounded);

            System.out.println(<span style='color:#2A00FF'>"AB = "</span> +
ABcrounded);

            System.out.println(<span style='color:#2A00FF'>"BC = "</span> +
BC);

            <span style='font-weight:bold;color:#D3171B'></span>
            <span style='font-weight:bold;color:#D3171B'></span>
            <span style='font-weight:bold;color:#D3171B'></span>

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        <span style='font-weight:bold;color:#7B0052;'>else</span> <span
style='font-weight:bold;color:#7B0052;'>if</span> (c <= 0) <span
style='font-weight:bold;color:#D3171B'>{</span>
    System.out.println(<span style='color:#2A00FF'"Side AC = "</span>);
    <span style='font-weight:bold;color:#7B0052;'>float</span> AC =
scan.nextFloat();
    <span style='font-weight:bold;color:#7B0052;'>if</span> (AC >
0) <span style='font-weight:bold;color:#D3171B'>{</span>
        System.out.println(<span style='color:#2A00FF'"Side AB =
"</span>);
        <span style='font-weight:bold;color:#7B0052;'>float</span> AB
= scan.nextFloat();
        <span style='font-weight:bold;color:#7B0052;'>if</span> (AB
> 0) <span style='font-weight:bold;color:#D3171B'>{</span>
            <span style='font-weight:bold;color:#7B0052;'>float</span>
BC = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.sqrt((<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.pow(AC,2) - (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(AB,2));
            <span style='font-weight:bold;color:#7B0052;'>float</span> BCrounded =
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(BC*100.0)/100;
            c = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.toDegrees(Math.asin(AB/AC));
            <span style='font-weight:bold;color:#7B0052;'>float</span> crounded =
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(c*100.0)/100;
            a = 90 - crounded;
            System.out.println(<span style='color:#2A00FF'"Results: Angle A =
"</span> + a);
            System.out.println(<span style='color:#2A00FF'"Angle B =
90"</span>);
            System.out.println(<span style='color:#2A00FF'"Angle C = "</span>
+ crounded);
            System.out.println(<span style='color:#2A00FF'"AC = "</span> +
AC);
            System.out.println(<span style='color:#2A00FF'"AB = "</span> +
AB);
            System.out.println(<span style='color:#2A00FF'"BC = "</span> +
BCrounded);

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        <span style='font-weight:bold;color:#D3171B'>}</span>
        <span style='font-weight:bold;color:#7B0052;'>else</span>
<span style='font-weight:bold;color:#D3171B'>{</span>
        System.out.println(<span style='color:#2A00FF'>"Side BC =
" </span>);
        <span style='font-weight:bold;color:#7B0052;'>float</span> BC
= scan.nextFloat();
        AB = (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.sqrt((<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(AC,2) -
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.pow(BC,2));
        <span style='font-weight:bold;color:#7B0052;'>float</span>
ABrounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(AB*100.0)/100;
        c = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.toDegrees(Math.asin(AB/AC));
        <span style='font-weight:bold;color:#7B0052;'>float</span>
crounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(c*100.0)/100;
        a = 90 - crounded;
        System.out.println(<span style='color:#2A00FF'>"Results: Angle A =
" </span> + a);
        System.out.println(<span style='color:#2A00FF'>"Angle B =
90" </span>);
        System.out.println(<span style='color:#2A00FF'>"Angle C = " </span>
+ crounded);
        System.out.println(<span style='color:#2A00FF'>"AC = " </span> +
AC);
        System.out.println(<span style='color:#2A00FF'>"AB = " </span> +
ABrounded);
        System.out.println(<span style='color:#2A00FF'>"BC = " </span> +
BC);

        <span style='font-weight:bold;color:#D3171B'>}</span>
        <span style='font-weight:bold;color:#D3171B'>}</span>
        <span style='font-weight:bold;color:#7B0052;'>else</span> <span
style='font-weight:bold;color:#D3171B'>{</span>
        System.out.println(<span style='color:#2A00FF'>"Side AB =
" </span>);

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        <span style='font-weight:bold;color:#7B0052;'>float</span> AB
= scan.nextFloat();
        System.out.println(<span style='color:#2A00FF;'>"Side BC =
"</span>);
        <span style='font-weight:bold;color:#7B0052;'>float</span> BC
= scan.nextFloat();
        AC = (<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.sqrt((<span
style='font-weight:bold;color:#7B0052;'>float</span>) Math.pow(AB,2) +
(<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.pow(BC,2));
        c = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.toDegrees(Math.asin(AB/AC));
        <span style='font-weight:bold;color:#7B0052;'>float</span>
crounded = (<span style='font-weight:bold;color:#7B0052;'>float</span>)
Math.round(c*100.0)/100;
        a = 90 - crounded;

        System.out.println(<span style='color:#2A00FF;'>"Results: Angle A =
"</span> + a);
        System.out.println(<span style='color:#2A00FF;'>"Angle B =
90"</span>);
        System.out.println(<span style='color:#2A00FF;'>"Angle C = "</span>
+ crounded);
        System.out.println(<span style='color:#2A00FF;'>"AC = "</span> +
AC);
        System.out.println(<span style='color:#2A00FF;'>"AB = "</span> +
AB);
        System.out.println(<span style='color:#2A00FF;'>"BC = "</span> +
BC);

        <span style='font-weight:bold;color:#D3171B;'>}</span>
<span style='font-weight:bold;color:#D3171B;'>}</span>
<span style='font-weight:bold;color:#D3171B;'>}</span>
<span style='font-weight:bold;color:#7B0052;'>else</span> <span
style='font-weight:bold;color:#D3171B;'>{</span>
        System.out.println(<span style='color:#2A00FF;'>"Sorry! You failed to
enter 2 numbers (excluding b = 90*)."</span>);
        <span style='font-weight:bold;color:#D3171B;'>}</span>
        System.out.println(<span style='color:#2A00FF;'>"Do you want to run
again, 1 if yes, 2 if no."</span>);

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ans = scan.nextInt();
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<span style='font-weight:bold;color:#D3171B'></span>
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<span style='font-weight:bold;color:#D3171B'></span>
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<span style='font-weight:bold;color:#D3171B'></span></pre>
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