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: $ctg\ 30° + ctg\ 75° = 2$.

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$30°\ (\angle ABD)$.

AC.
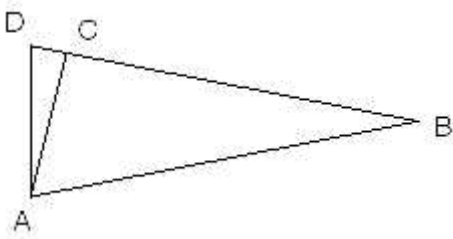
$$ctg\,30^0 = \frac{BC}{AC}, \quad ctg\,75^0 = \frac{CD}{AC} \quad \Rightarrow \quad ctg\,30^0 + ctg\,75^0 = \frac{BC}{AC} + \frac{CD}{AC} = \frac{BD}{AC}$$

AC = ½ AB = ½ BD,   .

2

     a,b,c , $(a+b+c)c<0$.   , $b^2–4ac>0$.

7

$f(x)=x^2+bx+ac$.   ,
$f(c)=c^2+bc+ac=(a+b+c)c<0$, . . $x=c$ $f(x)$.
     x^2 ,
     ($f(x)$).
     , $b^2–ac>0$.   :
     ,   ,
     .

3

$f(x)=x^2+12x+30.$: $f(f(f(f(f(x)))))=0.$

7

$x = -6 \pm \sqrt[32]{6}$

, $f(x)=(x+6)^2-6.$

, $f(f(f(f(f(x))))) = (x+6)^{32}-6.$

:

$x = -6 \pm \sqrt[32]{6}$.

4

. , A ,

$A + 6$, B , $B + 15$.

2000 1000 ?

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, C $C + 3$,

$C.$, $C -$, $C + 3 -$.

, $C + 18 = (C + 3) + 15$, ,

$C + 18 = ((C + 6) + 6) + 6$. , C

$-$, $C + 3 -$, $C + 15 = ((C + 3) + 6) + 6$

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