1992 FG9.2

若一正六邊形 $ABCDEF$ 之面積為 $54\sqrt{3}\text{ cm}^2$，且 $AC = y\sqrt{3}\text{ cm}$，求 y 的值。

$ABCDEF$ is a regular hexagon and $AB = 6$ cm, $AC = y\sqrt{3}$ cm,
find the value of y.

1994 HG7

一三角形的底為 80 cm，而其中一底角為 60°。若其餘兩邊的和為 90 cm，而這三角形的最短邊為 a cm，求 a 的值。

The base of a triangle is 80 cm and one of the base angles is 60°.
The sum of the lengths of the other two sides is 90 cm.
The length of the shortest side of this triangle is a cm. Find the value of a.

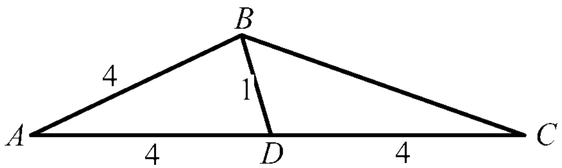
1994 FG10.1-2

在長方形 $ABCD$ 中，$AD = 10$，$CD = 15$，P 為長方形內一點，使 $PB = 9$，$PA = 12$。求 PD 之長 a 的值，及 PC 之長 b 的值。

In rectangle $ABCD$, $AD = 10$, $CD = 15$,
P is a point inside the rectangle such that $PB = 9$, $PA = 12$.
Find the value of a, the length of PD and the value of b, the length of PC.

1995 FI1.2

如圖示，$AB = AD = DC = 4$，$BD = 1$。
若 BC 之長為 b，求 b 的值。



In the figure, $AB = AD = DC = 4$, $BD = 1$. Find the value of b, the length of BC.

1995 FG7.1

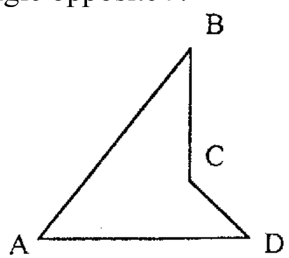
設 p、q、r 為三角形 PQR 的三邊。若 $p^4 + q^4 + r^4 = 2r^2(p^2 + q^2)$，且 $a = \cos^2 R$，其中 R 的對邊為 r，求 a 的值。

Let p, q, r be the three sides of triangle PQR. If $p^4 + q^4 + r^4 = 2r^2(p^2 + q^2)$,
find the value of a, where $a = \cos^2 R$ and R denotes the angle opposite r.

1998 FGS.2

在圖中，$ABCD$ 為一四邊形，其中內角 $\angle A$、$\angle B$ 及 $\angle D$ 均為 45°。BC 的延綫與 AD 互相垂直。若 $AC = 10$，$BD = b$，求 b 的值。

In the figure, $ABCD$ is a quadrilateral, where the interior angles $\angle A$, $\angle B$ and $\angle D$ are all equal to 45°.
When produced, BC is perpendicular to AD.
If $AC = 10$ and $BD = b$, find the value of b.



2001 FI1.1

a、b 和 c 分別為 ΔABC 的 $\angle A$、$\angle B$ 和 $\angle C$ 的相對邊的長度。

若 $\angle C = 60°$ 及 $\dfrac{a}{b+c} + \dfrac{b}{a+c} = P$，求 P 的值。

a, b and c are the lengths of the opposite sides $\angle A$, $\angle B$ and $\angle C$ of the ΔABC respectively. If $\angle C = 60°$ and $\dfrac{a}{b+c} + \dfrac{b}{a+c} = P$, find the value of P.

2002 HI6

若一圓內接四邊形的四邊長度為 9，10，10 和 21，
求該圓內接四邊形的面積。

If the lengths of the sides of a cyclic quadrilateral are 9, 10, 10 and 21 respectively, find the area of the cyclic quadrilateral.

2003 FI2.3

已知ΔABC 為一等腰三角形，$AB = AC = \sqrt{2}$ 及 BC 上有 4 個點 D_1、D_2、D_3、D_4。設 $m_i = AD_i^2 + BD_i \times D_iC$。若 $m_1 + m_2 + m_3 + m_3 + m_4 = R$，求 R 的值。

Given that ΔABC is an isosceles triangle, $AB = AC = \sqrt{2}$, and D_1, D_2, D_3, D_4 are 4 points on BC. Let $m_i = AD_i^2 + BD_i \times D_iC$.
If $m_1 + m_2 + m_3 + m_4 = R$, find the value of R.

2007 FG3.2

已知 $\sqrt{\dfrac{50+120+130}{2} \times (150-50) \times (150-120) \times (150-130)} = \dfrac{50 \times 130 \times k}{2}$。

若 $t = \dfrac{k}{\sqrt{1-k^2}}$，求 t 的值。

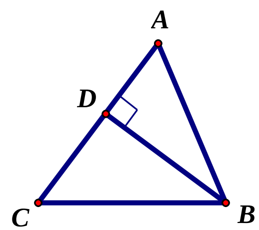
It is known that $\sqrt{\dfrac{50+120+130}{2} \times (150-50) \times (150-120) \times (150-130)} = \dfrac{50 \times 130 \times k}{2}$.

If $t = \dfrac{k}{\sqrt{1-k^2}}$, find the value of t.

2008 HI1

如圖，ABC 為一個三角形且 $AB = 13$ cm、$BC = 14$ cm 及 $AC = 15$ cm。D 為 AC 上的一點使得 $BD \perp AC$。若 CD 比 AD 長 X cm，求 X 的值。

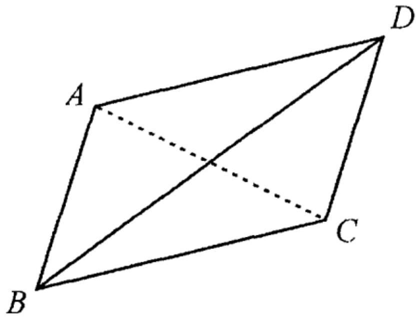
In the figure, ABC is a triangle, $AB = 13$ cm, $BC = 14$ cm and $AC = 15$ cm. D is a point on AC such that $BD \perp AC$. If CD is longer than AD by X cm, find the value of X.



2008 FG1.2

如圖，$ABCD$ 是平行四邊形，$BA = 3$ cm、$BC = 4$ cm 及 $BD = \sqrt{37}$ cm。若 $AC = h$ cm，求 h 的值。

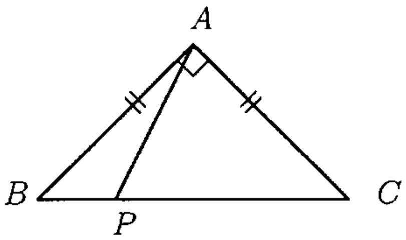
In the figure, $ABCD$ is a parallelogram with $BA = 3$ cm, $BC = 4$ cm and $BD = \sqrt{37}$ cm. If $AC = h$ cm, find the value of h .



2010 HIS

在圖中，ABC 為一等腰三角形及 P 為 BC 上的一點。若 $BP^2 + CP^2 : AP^2 = k : 1$，求 k 的值。

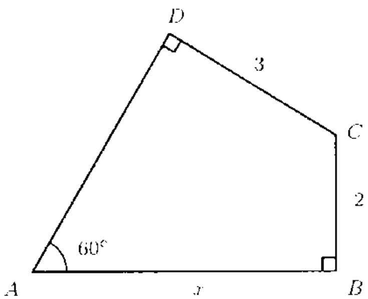
In the figure, ABC is an isosceles triangle and P is a point on BC. If $BP^2 + CP^2 : AP^2 = k : 1$, find the value of k .



2010 FG3.3

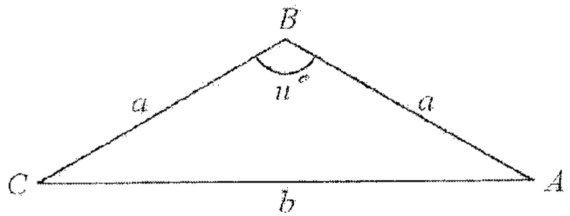
在圖中，若 $\angle A = 60°$，$\angle B = \angle D = 90°$。$BC = 2$，$CD = 3$ 及 $AB = x$，求 x 的值。

In the figure, $\angle A = 60°$, $\angle B = \angle D = 90°$. $BC = 2$, $CD = 3$ and $AB = x$, find the value of x .



2013 FG2.4

在圖中，ABC 是一等腰三角形，其中 $\angle ABC = u°$，$AB = BC = a$ 和 $AC = b$。若二次方程 $ax^2 - \sqrt{2} \cdot bx + a = 0$ 有兩個實根，它們的絕對差為 $\sqrt{2}$，求 u 的值。

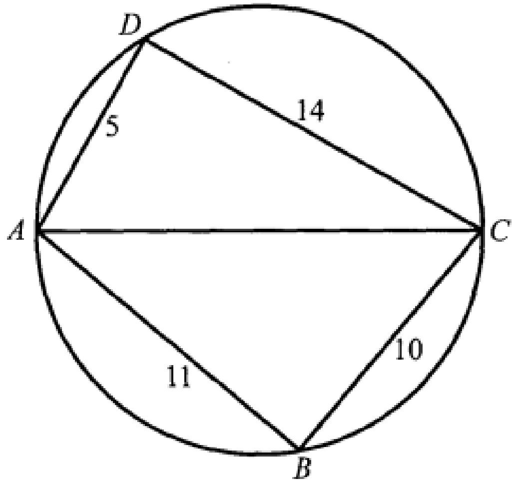


In the figure, ABC is an isosceles triangle with $\angle ABC = u°$, $AB = BC = a$ and $AC = b$. If the quadratic equation $ax^2 - \sqrt{2} \cdot bx + a = 0$ has two real roots, whose absolute difference is $\sqrt{2}$, find the value of u .

2014 HI5

如圖所示，$ABCD$ 為圓內接四邊形，其中 $AD = 5$、$DC = 14$、$BC = 10$ 及 $AB = 11$。求四邊形 $ABCD$ 的面積。

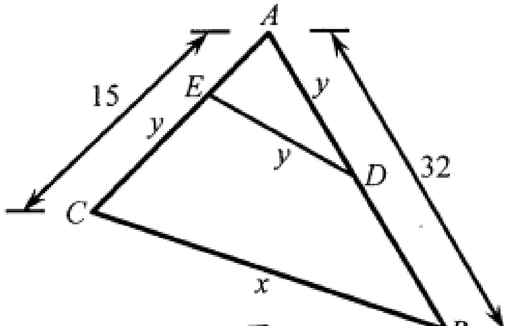
As shown in the figure, $ABCD$ is a cyclic quadrilateral, where $AD = 5$, $DC = 14$, $BC = 10$ and $AB = 11$. Find the area of quadrilateral $ABCD$.



2014 HG2

如圖顯示ΔABC 中，$AB = 32$、$AC = 15$ 及 $BC = x$，其中 x 為一個正整數。假設 AB 及 AC 分別有一點 D 及 E 使得 $AD = DE = EC = y$，其中 y 為一個正整數。求 x 的值。

The figure shows a ΔABC, $AB = 32$, $AC = 15$ and $BC = x$, where x is a positive integer. If there are points D and E lying on AB and AC respectively such that $AD = DE = EC = y$, where y is a positive integer. Find the value of x .

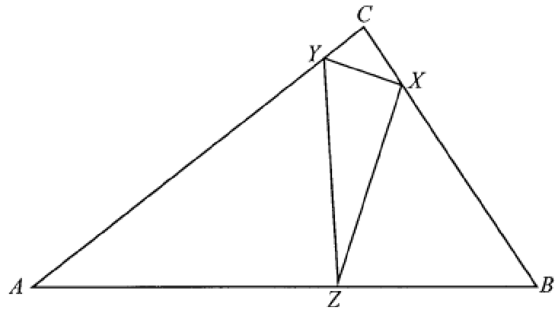


圖一

2014 HG6

如圖三所示，在ΔABC 中，X、Y 及 Z 為分別位於 BC、CA 及 AB 的點使得$\angle AZY = \angle BZX$、$\angle BXZ = \angle CXY$ 及$\angle CYX = \angle AYZ$。若 $AB = 10$、$BC = 6$ 及 $CA = 9$，求 AZ 的長度。

As shown in Figure 3, X, Y and Z are points on BC, CA and AB of ΔABC respectively such that $\angle AZY = \angle BZX$, $\angle BXZ = \angle CXY$ and $\angle CYX = \angle AYZ$. If $AB = 10$, $BC = 6$ and $CA = 9$, find the length of AZ .



2017 FG3.4

在三角形 ABC 中，$BC = a$，$\angle ABC = \dfrac{\pi}{3}$ 及面積為 $\sqrt{3}a^2$。求 $U = \tan(\angle ACB)$的值。

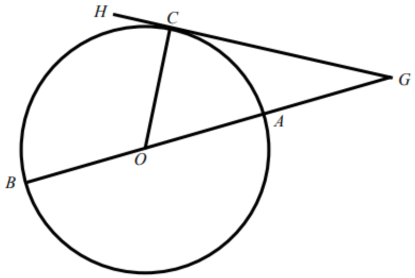
In triangle ABC, $BC = a$, $\angle ABC = \dfrac{\pi}{3}$ and its area is $\sqrt{3}a^2$.

Determine the value of $U = \tan(\angle ACB)$.

2021 P1Q13

在圖四中，O 是圓的圓心。直徑 BA 延長至點 G 使得 GH 切圓於 C 點。若 $OA = 5$ 及 $GC = 12$，求 BC 的長度。

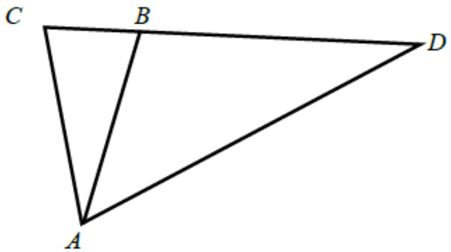
In Figure 4, O is the centre of the circle. The diameter BA is produced to a point G such that GH is a tangent to the circle at C. If $OA = 5$ and $GC = 12$, find the length of BC.



2022 P1Q2

在圖一中，ACD 是一個三角形。B 是CD上的一點使$AB = AC = 2$ 及 $AD = 4$。若$BC : BD = 1 : 3$，求 CD 的長。

In Figure 1, ACD is a triangle. B is a point on CD such that $AB = AC = 2$ and $AD = 4$.
If $BC : BD = 1 : 3$, find the length of CD.



2022 P1Q9

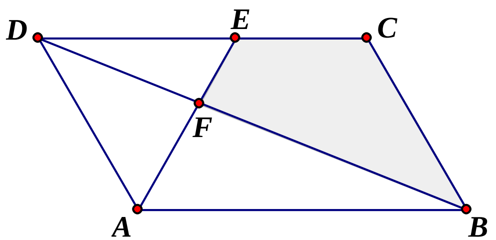
$ABCD$ 是一個圓內接四邊形，其中$AB = 7$, $BC = 15$, $CD = 20$ and $DA = 24$。求圓$ABCD$ 的半徑。

$ABCD$ is a cyclic quadrilateral with $AB = 7$, $BC = 15$, $CD = 20$ and $DA = 24$.
Find the radius of the circle $ABCD$.

2023 FG3.2

設$ABCD$為平行四邊形且$AB = 40$，$AD = 24$及$DB = 56$。$\angle DAB$的角平分線與DC相交於E點，且對角線DB與 AE相交於 F 點。求四邊形$ECBF$的面積。

Let $ABCD$ be a parallelogram with $AB = 40$, $AD = 24$ and $DB = 56$.



The angle bisector of $\angle DAB$ meets side DC at the point E, and the diagonal DB meets AE at the point F. Find the area of the quadrilateral $ECBF$.

Answers

1992 FG9.2 6	1994 HG7 17	1994 FG10.1-2 10, $\sqrt{37}$	1995 FI1.2 $3\sqrt{2}$	1995 FG7.1 $\frac{1}{2}$
1998 FGS.2 10	2001 FI1.1 1	2002 HI6 120	2003 FI2.3 8	2007 FG3.2 $\frac{12}{5}$
2008 HI1 $\frac{9}{5}$	2008 FG1.2 $\sqrt{13}$	2010 HIS 2	2010 FG3.3 $\frac{8}{\sqrt{3}}$	2013 FG2.4 120
2014 HI5 90	2014 HG2 23	2014 HG6 $\frac{29}{4}$ (= 7.25)	2017 FG3.4 $-2\sqrt{3}$	2021 P1Q13 $\frac{30\sqrt{13}}{13}$
2022 P1Q2 4	2022 P1Q9 12.5	2023 FG3.2 $186\sqrt{3}$		