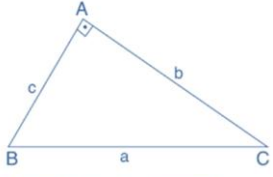


DİK ÜÇGEN

Bir iç açısının ölçüsü 90° olan üçgene dik üçgen denir. Dik açıyı oluşturan kenarlara dik kenarlar, dik açı karşısındaki kenara da hipotenüs adı verilir.



$$m(\widehat{BAC}) = 90^\circ$$

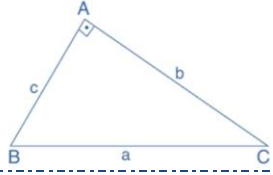
a = Hipotenüs uzunluğu

b = Dik kenar uzunluğu

c = Dik kenar uzunluğu

PİSAGOR BAĞINTISI

Bir dik üçgende hipotenüs uzunluğunun karesi, dik kenar uzunluklarının kareleri toplamına eşittir.

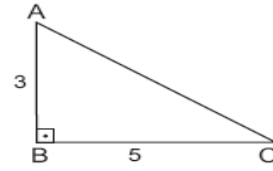


$$m(\widehat{BAC}) = 90^\circ$$

$$a^2 = b^2 + c^2$$

ÖRNEKLER

1)



ABC bir diküçgen

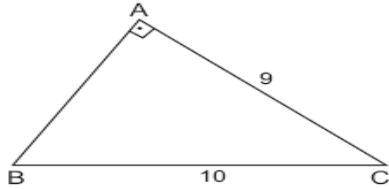
$$|AB| = 3 \text{ cm}$$

$$|BC| = 5 \text{ cm}$$

olduğuna göre, $|AC|$ kaç cm dir?

$$C : \sqrt{34}$$

2)



BAC bir diküçgen

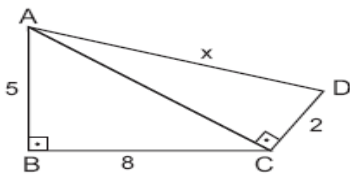
$$|BC| = 10 \text{ cm}$$

$$|AC| = 9 \text{ cm}$$

olduğuna göre, $|AB|$ kaç cm dir?

$$C : \sqrt{19}$$

3)



$$|CD| = 2 \text{ cm}$$

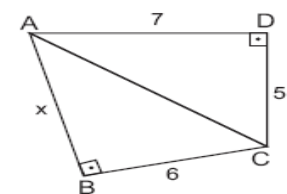
$$|AB| = 5 \text{ cm}$$

$$|BC| = 8 \text{ cm}$$

olduğuna göre, x kaç cm dir?

$$C : \sqrt{93}$$

4)



$$|AD| = 7 \text{ cm}$$

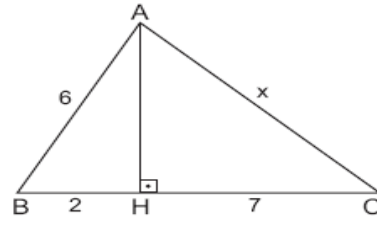
$$|DC| = 5 \text{ cm}$$

$$|BC| = 6 \text{ cm}$$

olduğuna göre, x kaç cm dir?

$$C : \sqrt{38}$$

5)



$$|AB| = 6 \text{ cm}$$

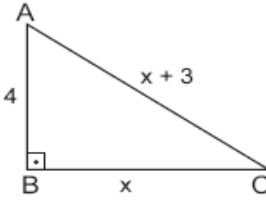
$$|BH| = 2 \text{ cm}$$

$$|HC| = 7 \text{ cm}$$

olduğuna göre, $|AC| = x$ kaç cm dir?

$$C : 9$$

6)



ABC bir diküçgen

$$|AB| = 4 \text{ cm}$$

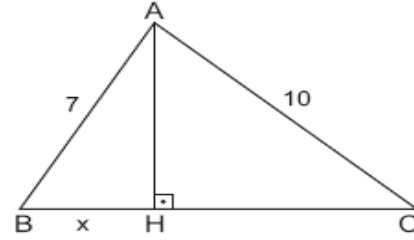
$$|AC| = x + 3$$

$$|BC| = x$$

olduğuna göre, $|AC|$ kaç cm dir?

$$C : \frac{25}{6}$$

7)



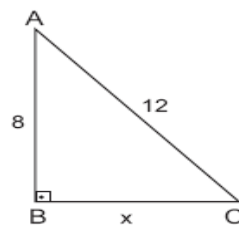
$$|AB| = 7 \text{ cm}$$

$$|AC| = 10 \text{ cm}$$

$$|BC| = 9 \text{ cm}$$

olduğuna göre, x kaç cm dir?

8)



ABC dik üçgen

$$|AB| = 8 \text{ cm}$$

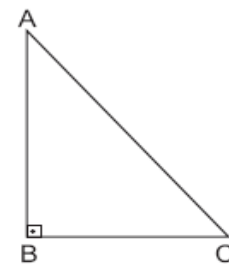
$$|AC| = 12 \text{ cm}$$

$$|BC| = x \text{ cm}$$

olduğuna göre, x kaçtır?

$$C : 4\sqrt{5}$$

9)



ABC dik üçgen

$$\frac{|AB|}{|BC|} = \frac{3}{7}$$

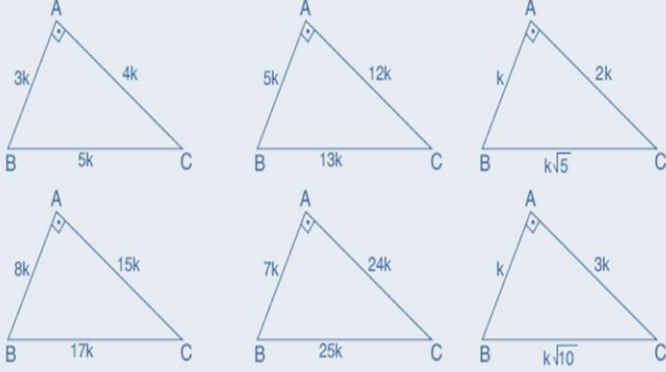
$$|AC| = 2\sqrt{29} \text{ cm}$$

olduğuna göre, $|BC|$ kaç cm dir?

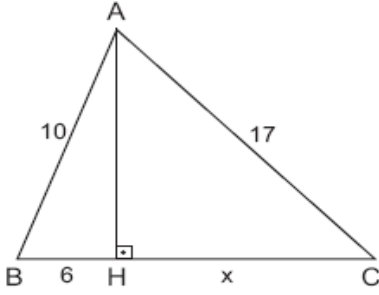
$$C : 7\sqrt{2}$$

KENARLARINA GÖRE ÖZEL DİK ÜÇGENLER**(PİSAGOR YAPMADAN KENAR BULMA YÖNTEMLERİ)**

Kenar uzunlukları a , b ve c olan bir üçgen eğer dik üçgen ise, k pozitif gerçekte sayı olmak üzere kenar uzunlukları ka , kb , kc olan üçgen de dik üçgendir. Çok sık kullanılan bazı dik üçgenler aşağıda gösterilmiştir. ($k \in \mathbb{R}^+$)



10)

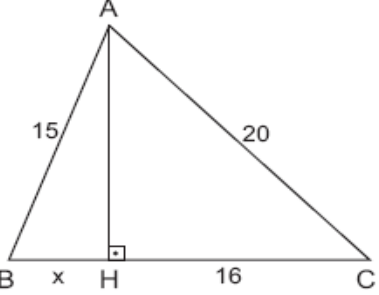


ABC bir üçgen

 $[AH] \perp [BC]$ $|AB| = 10 \text{ cm}$ $|BH| = 6 \text{ cm}$ $|AC| = 17 \text{ cm}$ olduğuna göre, $|HC| = x$ kaç cm dir?

C : 15

11)

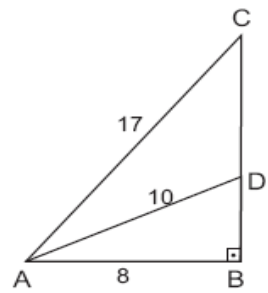


ABC bir üçgen

 $[AH] \perp [BC]$ $|AB| = 15 \text{ cm}$ $|AC| = 20 \text{ cm}$ $|HC| = 16 \text{ cm}$ olduğuna göre, $|BH| = x$ kaç cm dir?

C : 9

12)

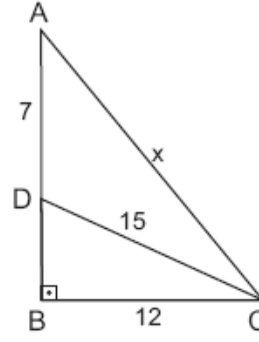


ABC bir üçgen

 $[AB] \perp [BC]$ $|AB| = 8 \text{ cm}$ $|AD| = 10 \text{ cm}$ $|AC| = 17 \text{ cm}$ olduğuna göre, $|CD|$ kaç cm dir?

C : 9

13)

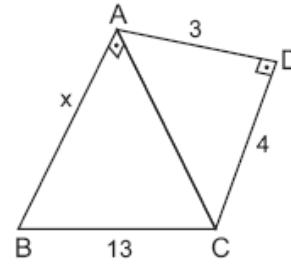


ABC bir üçgen

 $[AB] \perp [BC]$ $|AD| = 7 \text{ cm}$ $|CD| = 15 \text{ cm}$ $|BC| = 12 \text{ cm}$ olduğuna göre, $|AC| = x$ kaç cm dir?

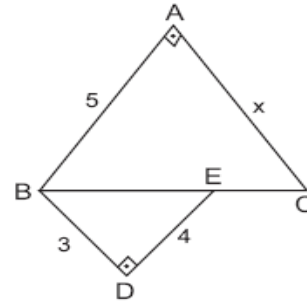
C : 20

14)

 $[BA] \perp [AC]$ $[AD] \perp [DC]$ $|AD| = 3 \text{ cm}$ $|CD| = 4 \text{ cm}$ $|BC| = 13 \text{ cm}$ olduğuna göre, $|AB| = x$ kaç cm dir?

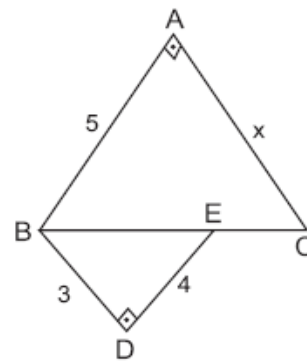
C : 12

15)

 $[AB] \perp [AC]$ $[BD] \perp [DE]$ $|AB| = 5 \text{ cm}$ $|BD| = 3 \text{ cm}$ $|DE| = 4 \text{ cm}$ $|EC| = 8 \text{ cm}$ olduğuna göre, $|AC| = x$ kaç cm dir?

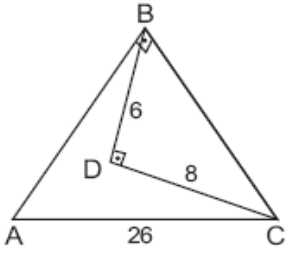
C : 12

16)

 $[AB] \perp [AC]$ $[BD] \perp [DE]$ $|AB| = 5 \text{ cm}$ $|BD| = 3 \text{ cm}$ $|DE| = 4 \text{ cm}$ $|EC| = 8 \text{ cm}$ olduğuna göre, $|AC| = x$ kaç cm dir?

C : 12

17)



ABC dik üçgen

$[AB] \perp [BC]$

$[BD] \perp [DC]$

$|AC| = 26 \text{ cm}$

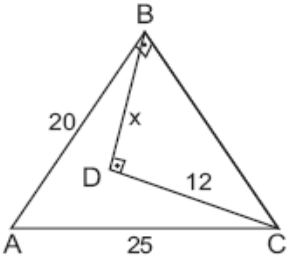
$|BD| = 6 \text{ cm}$

$|CD| = 8 \text{ cm}$

olduğuna göre, $|AB| = x$ kaç cm dir?

C : 24

18)



ABC dik üçgen

$[AB] \perp [BC]$

$[BD] \perp [DC]$

$|AB| = 20 \text{ cm}$

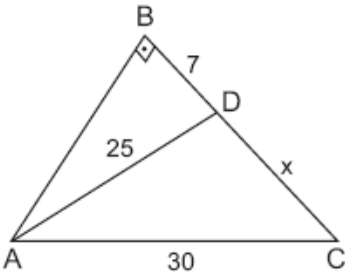
$|AC| = 25 \text{ cm}$

$|CD| = 12 \text{ cm}$

olduğuna göre, $|BD| = x$ kaç cm dir?

C : 9

19)



ABC dik üçgen

$[AB] \perp [BC]$

$|AC| = 30 \text{ cm}$

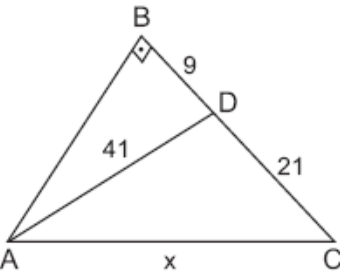
$|AD| = 25 \text{ cm}$

$|BD| = 7 \text{ cm}$

olduğuna göre, $|CD| = x$ kaç cm dir?

C : 11

20)



ABC dik üçgen

$[AB] \perp [BC]$

$|AD| = 41 \text{ cm}$

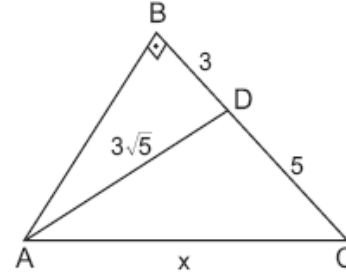
$|BD| = 9 \text{ cm}$

$|CD| = 21 \text{ cm}$

olduğuna göre, $|AC| = x$ kaç cm dir?

C : 50

21)



ABC dik üçgen

$[AB] \perp [BC]$

$|BD| = 3 \text{ cm}$

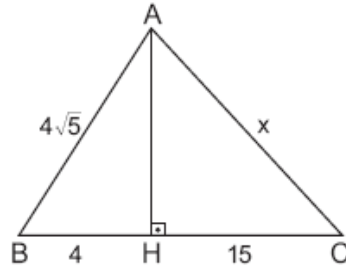
$|AD| = 3\sqrt{5} \text{ cm}$

$|CD| = 5 \text{ cm}$

olduğuna göre, $|BC| = x$ kaç cm dir?

C : 10

22)



ABC dik üçgen

$[AH] \perp [BC]$

$|AB| = 4\sqrt{5} \text{ cm}$

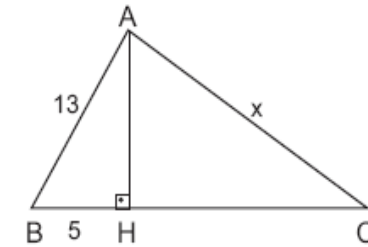
$|BH| = 4 \text{ cm}$

$|HC| = 15 \text{ cm}$

olduğuna göre, $|AC| = x$ kaç cm dir?

C : 17

23)



ABC bir üçgen

$[AH] \perp [BC]$

$|AB| = 13 \text{ cm}$

$|BH| = 5 \text{ cm}$

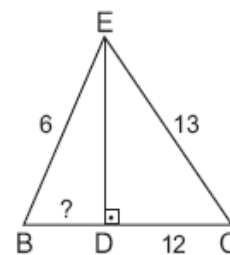
$|HC| = 9 \text{ cm}$

olduğuna göre, $|AC| = x$ kaç cm dir?

A) 5 B) 8 C) 12 D) 15 E) 17

24)

Aşağıdaki ABC üçgeninde



$|AB| = 6 \text{ cm}$

$|AC| = 13 \text{ cm}$

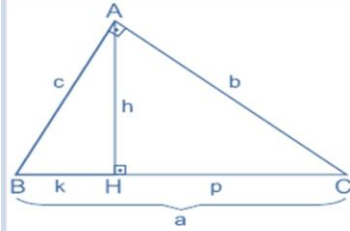
$|DC| = 12 \text{ cm}$

$[AD] \perp [BC]$

olduğuna göre, $|BD|$ kaç cm dir?A) $\sqrt{11}$ B) $\sqrt{10}$ C) 3 D) $\sqrt{8}$ E) $\sqrt{7}$

ÖKLİD BAĞINTILARI

BAC dik üçgen



$$[AH] \perp [BC]$$

$$[AB] \perp [AC]$$

$$1) h^2 = k \cdot p$$

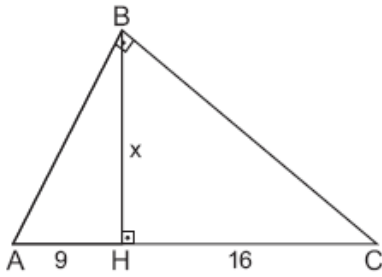
$$2) b^2 = p \cdot a$$

$$3) c^2 = k \cdot a$$

$$4) \frac{1}{h^2} = \frac{1}{b^2} + \frac{1}{c^2}$$

$$5) b \cdot c = a \cdot h$$

25)



ABC dik üçgen

$$[AB] \perp [BC]$$

$$[BH] \perp [AC]$$

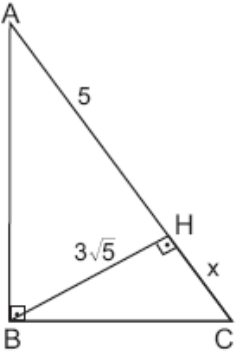
$$|AH| = 9 \text{ cm}$$

$$|HC| = 16 \text{ cm}$$

olduğuna göre, $|BH| = x$ kaç cm dir?

C : 12

26)



ABC dik üçgen

$$[AB] \perp [BC]$$

$$[BH] \perp [AC]$$

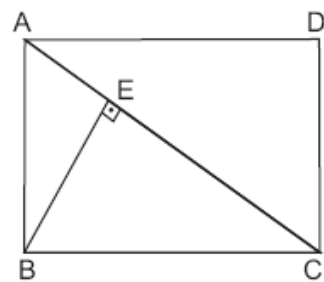
$$|BH| = 3\sqrt{5} \text{ cm}$$

$$|AH| = 5 \text{ cm}$$

olduğuna göre, $|HC| = x$ kaç cm dir?

C : 9

27)



ABCD dikdörtgen

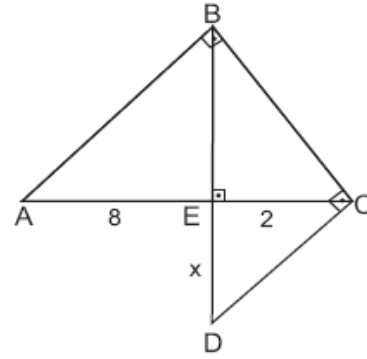
$$[BE] \perp [AC]$$

$$|BE| = 6 \text{ cm}$$

$$|EC| = 6\sqrt{3} \text{ cm}$$

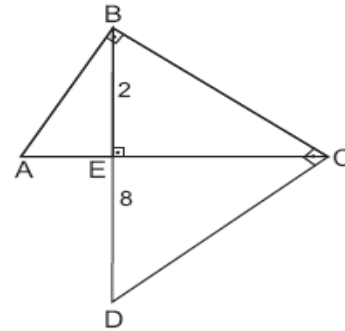
olduğuna göre, $|AE| = x$ kaç cm dir?C : $2\sqrt{3}$

28)

olduğuna göre, x kaç birimdir?

C : 1

29)



ABC dik üçgen

$$[AB] \perp [BC]$$

$$[BC] \perp [CD]$$

$$[BD] \perp [AC]$$

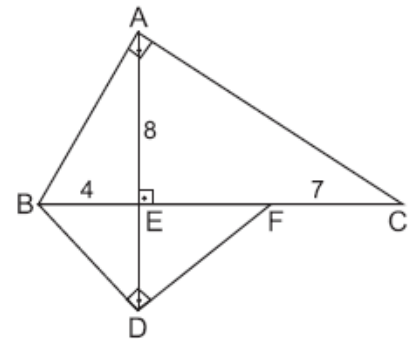
$$|EB| = 2 \text{ cm}$$

$$|DE| = 8 \text{ cm}$$

olduğuna göre, $|AE|$ kaç cm dir?

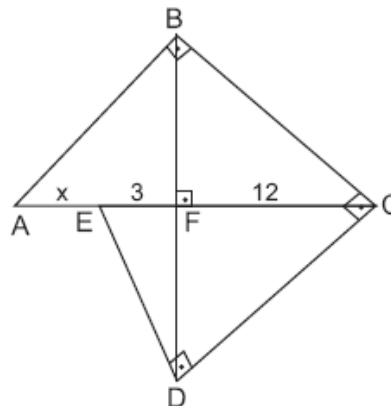
C : 1

30)

Şekildeki verilere göre, $|ED|$ kaç birimdir?

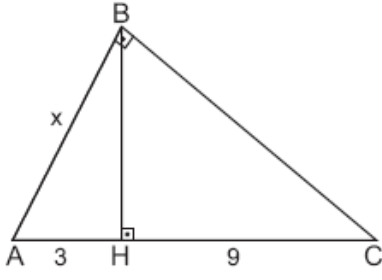
C : 6

31)

Yandaki şekilde verilenlere göre, x kaçtır?

C : 45

32)



ABC dik üçgen

$[AB] \perp [BC]$

$[BH] \perp [AC]$

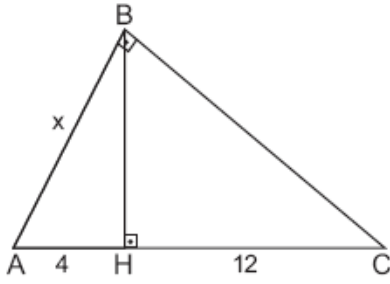
$|AH| = 3 \text{ cm}$

$|HC| = 9 \text{ cm}$

olduğuna göre, $|AB| = x$ kaç cm dir?

C : 6

33)



ABC dik üçgen

$[AB] \perp [BC]$

$[BH] \perp [AC]$

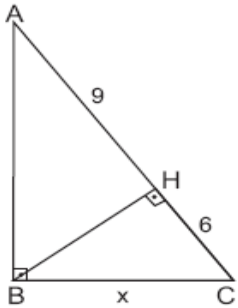
$|AH| = 4 \text{ cm}$

$|HC| = 12 \text{ cm}$

olduğuna göre, $|AB| = x$ kaç cm dir?

C : 8

34)



ABC dik üçgen

$[AB] \perp [BC]$

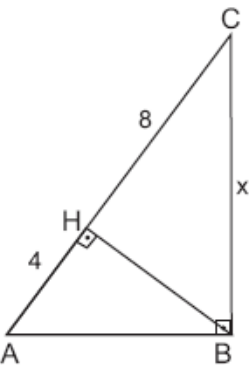
$[BH] \perp [AC]$

$|AH| = 9 \text{ cm}$

$|HC| = 6 \text{ cm}$

olduğuna göre, $|BC| = x$ kaç cm dir?C : $3\sqrt{10}$

35)



ABC dik üçgen

$[AB] \perp [BC]$

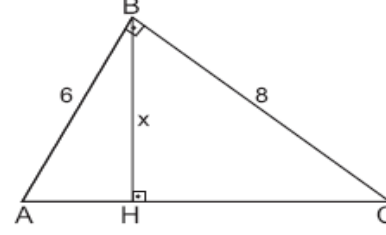
$[BH] \perp [AC]$

$|AH| = 4 \text{ cm}$

$|HC| = 8 \text{ cm}$

olduğuna göre, $|BC| = x$ kaç cm dir?C : $4\sqrt{6}$

36)



ABC dik üçgen

$[AB] \perp [BC]$

$[BH] \perp [AC]$

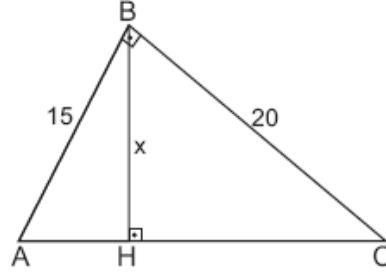
$|AB| = 6 \text{ cm}$

$|BC| = 8 \text{ cm}$

olduğuna göre, $|BH| = x$ kaç cm dir?

C : 4,8

37)



ABC dik üçgen

$[AB] \perp [BC]$

$[BH] \perp [AC]$

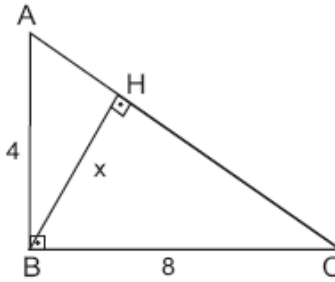
$|AB| = 15 \text{ cm}$

$|BC| = 20 \text{ cm}$

olduğuna göre, $|BH| = x$ kaç cm dir?

C : 12

38)



ABC dik üçgen

$[AB] \perp [BC]$

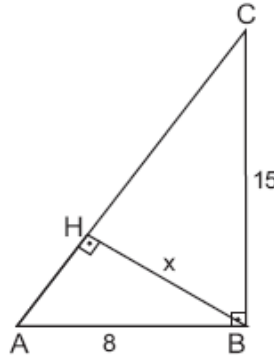
$[BH] \perp [AC]$

$|AB| = 4 \text{ cm}$

$|BC| = 8 \text{ cm}$

olduğuna göre, $|BH| = x$ kaç cm dir?C : $\frac{8}{\sqrt{5}}$

39)



ABC dik üçgen

$[AB] \perp [BC]$

$[BH] \perp [AC]$

$|AB| = 8 \text{ cm}$

$|BC| = 15 \text{ cm}$

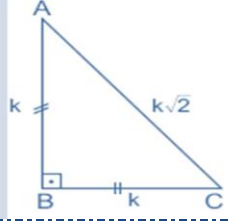
$|BH| = x \text{ cm}$

olduğuna göre, x kaç cm dir?C : $\frac{120}{17}$

AÇILARINA GÖRE ÖZEL DİK ÜÇGENLER

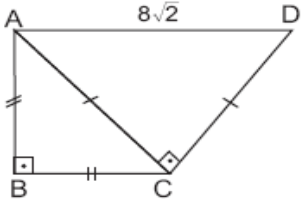
45° - 45° - 90° dik üçgeni :

* İkizkenar dik üçgenin hipotenüsü, dik kenarlarından birinin $\sqrt{2}$ katına eşittir.



$$|AB| = |BC| = k \text{ ise;} \\ |AC| = k\sqrt{2} \text{ olur.}$$

40)

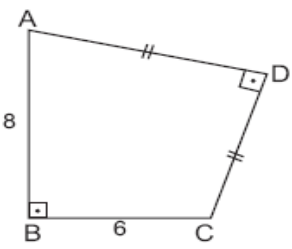


$$|AB| = |BC| \\ |AC| = |CD| \\ |AD| = 8\sqrt{2} \text{ cm}$$

olduğuna göre, $|AB|$ kaç cm dir?

C : $4\sqrt{2}$

41)

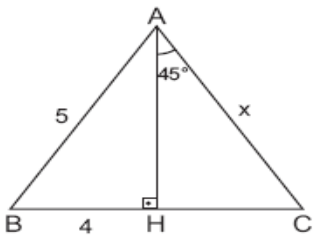


$$m(\widehat{ABC}) = m(\widehat{ADC}) = 90^\circ \\ |AB| = 8 \text{ cm} \\ |BC| = 6 \text{ cm} \\ |AD| = |DC|$$

olduğuna göre, $|AD|$ kaç cm dir?

C : $5\sqrt{2}$

42)

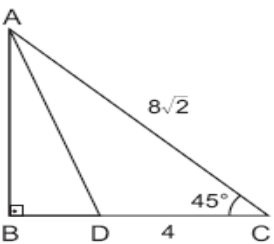


$$\text{ABC bir üçgen} \\ [AH] \perp [BC] \\ m(\widehat{HAC}) = 45^\circ \\ |AB| = 5 \text{ cm} \\ |BH| = 4 \text{ cm}$$

olduğuna göre, $|AC| = x$ kaç cm dir?

C : $3\sqrt{2}$

43)



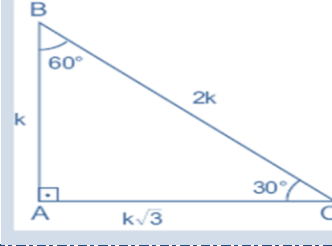
$$\text{ABC dik üçgen} \\ [AB] \perp [BC] \\ m(\widehat{ACB}) = 45^\circ \\ |AC| = 8\sqrt{2} \text{ cm} \\ |CD| = 4 \text{ cm}$$

olduğuna göre, $|AD|$ kaç cm dir?

C : $4\sqrt{5}$

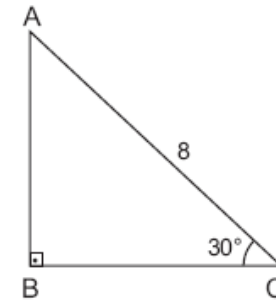
30° - 60° - 90° dik üçgeni :

* Bir dar açısının ölçüsü 30° olan dik üçgende, bu açı karşısındaki dik kenar hipotenüsün yarısına eşittir.



$$|BC| = 2k \text{ ise;} \\ |AB| = k \\ \text{ve } |AC| = k\sqrt{3} \text{ olur.}$$

44)



ABC dik üçgen

$$[AB] \perp [BC]$$

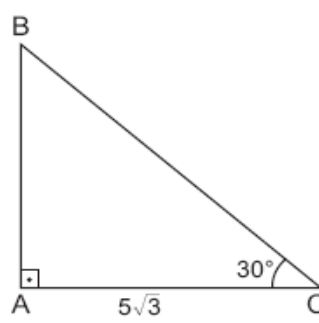
$$m(\widehat{ACB}) = 30^\circ$$

$$|AC| = 8 \text{ cm}$$

olduğuna göre, $|BC|$ kaç cm dir?

C : $4\sqrt{3}$

45)



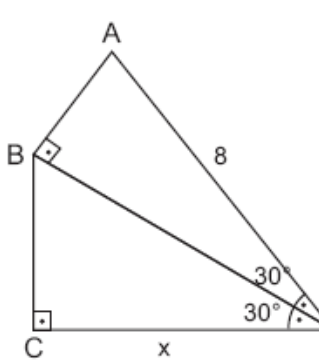
$$m(\widehat{ACB}) = 30^\circ$$

$$|AC| = 5\sqrt{3} \text{ cm}$$

olduğuna göre, $|AB| + |BC|$ toplamı kaç cm dir?

C : 15

46)



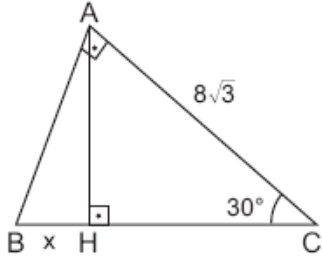
$$m(\widehat{ADB}) = m(\widehat{BDC}) = 30^\circ$$

$$|AD| = 8 \text{ cm}$$

olduğuna göre, $|CD| = x$ kaç cm dir?

C : 6

47)

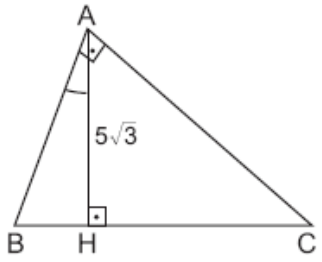


BAC bir diküçgen
 $m(\widehat{ACB}) = 30^\circ$
 $|AC| = 8\sqrt{3}$ cm

olduğuna göre, $|BH| = x$ kaç cm dir?

C : 4

48)

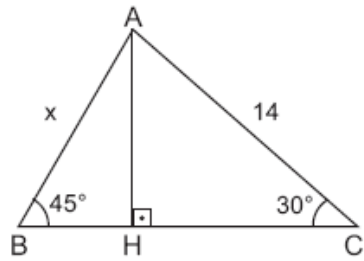


BAC bir dik üçgen
 $m(\widehat{BAH}) = 30^\circ$
 $|AH| = 5\sqrt{3}$ cm

olduğuna göre, $|BC|$ kaç cm dir?

C : 20

49)

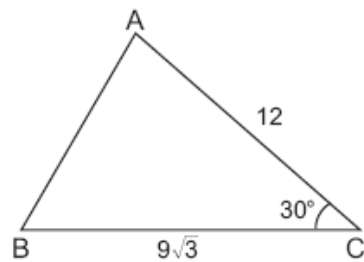


ABC üçgen
 $[AH] \perp [BC]$
 $|AC| = 14$ cm

olduğuna göre, $|AB| = x$ kaç cm dir?

C : $7\sqrt{2}$

50)

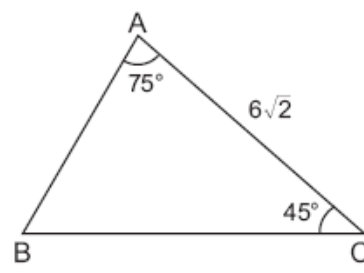


$m(\widehat{ACB}) = 30^\circ$
 $|AC| = 12$ cm
 $|BC| = 9\sqrt{3}$ cm

olduğuna göre, $|AB|$ kaç cm dir?

C : $3\sqrt{7}$

51)

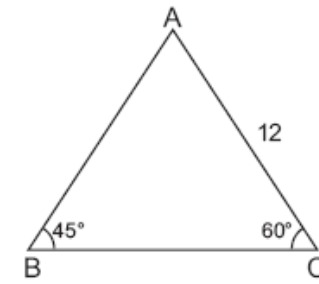


$m(\widehat{BAC}) = 75^\circ$
 $m(\widehat{ACB}) = 45^\circ$
 $|AC| = 6\sqrt{2}$ cm

olduğuna göre, $|AB|$ kaç cm dir?

C : $4\sqrt{3}$

52)

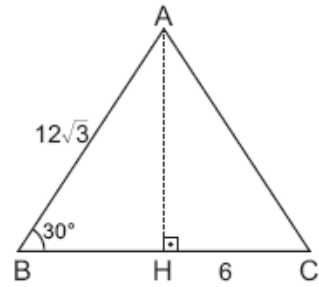


ABC bir üçgen
 $m(\widehat{ABC}) = 45^\circ$
 $m(\widehat{ACB}) = 60^\circ$
 $|AC| = 12$ cm

olduğuna göre, $|AB|$ kaç cm dir?

C : $6\sqrt{6}$

53)

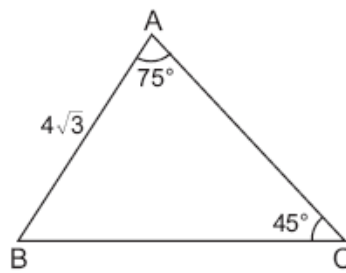


ABC bir üçgen
 $[AH] \perp [BC]$
 $m(\widehat{ABC}) = 30^\circ$
 $|AB| = 12\sqrt{3}$ cm
 $|HC| = 6$ cm

olduğuna göre, $|AC|$ kaç cm dir?

C : 12

54)

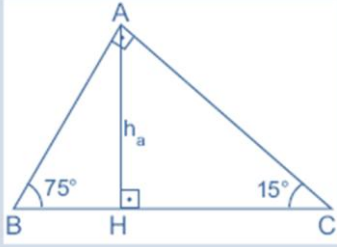


ABC bir üçgen
 $m(\widehat{BAC}) = 75^\circ$
 $m(\widehat{ACB}) = 45^\circ$
 $|AB| = 4\sqrt{3}$ cm

olduğuna göre, $|AC|$ kaç cm dir?

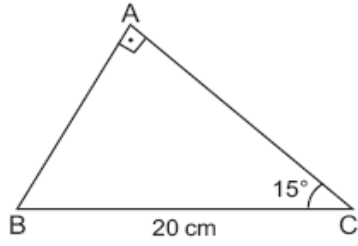
C : $6\sqrt{2}$

* Bir dar açısının ölçüsü 15° olan dik üçgende; hipotenüsün uzunluğu, hipotenüze ait yüksekliğin 4 katıdır.



$$|BC| = 4 \cdot |AH| = 4 \cdot h_a$$

55)



BAC bir diküçgen

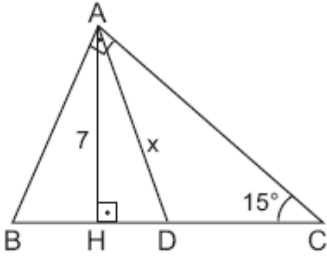
$$m(\widehat{ACB}) = 15^\circ$$

$$|BC| = 20 \text{ cm}$$

olduğuna göre, A noktasının [BC] ye uzaklığı kaç cm dir?

C : 5

56)



$$m(\widehat{ACB}) = 15^\circ$$

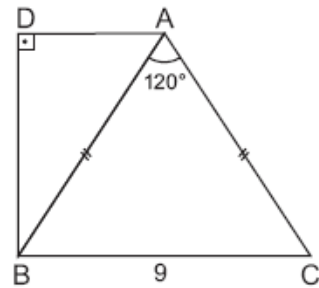
$$|AH| = 7 \text{ cm}$$

$$|BD| = |DC|$$

olduğuna göre, $|AD| = x$ kaç cm dir?

C : 14

57)



$$[AD] \parallel [BC]$$

$$m(\widehat{BAC}) = 120^\circ$$

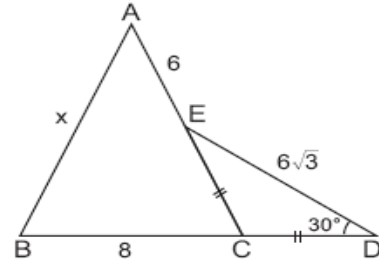
$$|AB| = |AC|$$

$$|BC| = 9 \text{ cm}$$

olduğuna göre, $|BD|$ kaç cm dir?

$$C : \frac{3\sqrt{3}}{2}$$

58)



ABC bir üçgen

B, C, D doğrusal

$$m(\widehat{CDE}) = 30^\circ$$

$$|CD| = |CE|$$

$$|AE| = 6 \text{ cm}$$

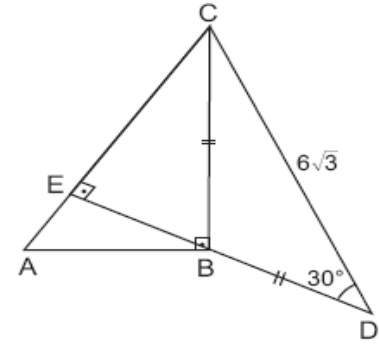
$$|DE| = 6\sqrt{3} \text{ cm}$$

$$|BC| = 8 \text{ cm}$$

olduğuna göre, $|AB| = x$ kaç cm dir?

C : $4\sqrt{7}$

59)



ABC dik üçgen

E, B ve D doğrusal

$$[AB] \perp [BC]$$

$$[DE] \perp [AC]$$

$$m(\widehat{CDE}) = 30^\circ$$

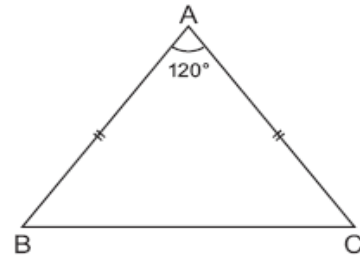
$$|CD| = 6\sqrt{3} \text{ cm}$$

$$|BC| = |BD|$$

olduğuna göre, $|AC|$ kaç cm dir?

C : $4\sqrt{3}$

60)



ABC bir üçgen

$$m(\widehat{BAC}) = 120^\circ$$

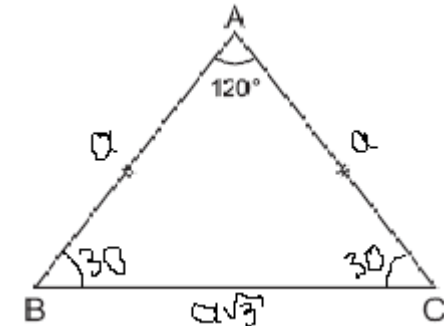
$$|AB| = |AC|$$

$$|BC| = 12 \text{ cm}$$

olduğuna göre, $|AB|$ kaç cm dir?

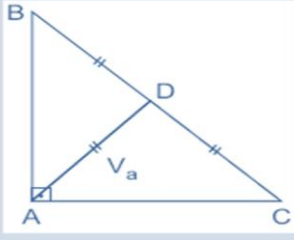
C : $4\sqrt{3}$

NOT: 120-30-30 ÜÇGENİNDE UZUN KENAR KISA KENARIN KÖKÜÇ KATI OLUR.

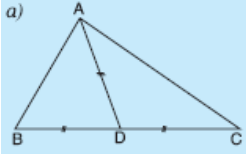


MUHEŞEM ÜÇLÜ

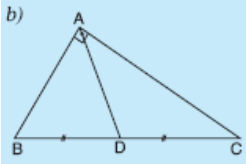
* Bir dik üçgende hipotenüse ait kenarortayın uzunluğu, hipotenüs uzunluğunun yarısına eşittir.



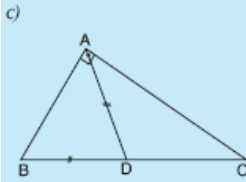
$$V_a = \frac{|BC|}{2}$$



$|DA| = |DB| = |DC| \Rightarrow m(\widehat{BAC}) = 90^\circ$ dir.
(Muhteşem üçlü)

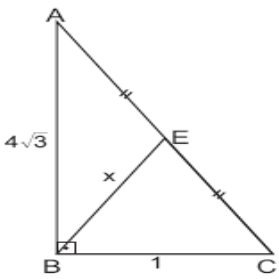


$m(\widehat{BAC}) = 90^\circ$, $|BD| = |DC| \Rightarrow |AD| = |BD| = |DC|$ dir.
(Muhteşem üçlü)



$m(\widehat{BAC}) = 90^\circ$ ve $|BD| = |AD| \Rightarrow |AD| = |BD| = |DC|$ dir.
(Muhteşem üçlü)

61)

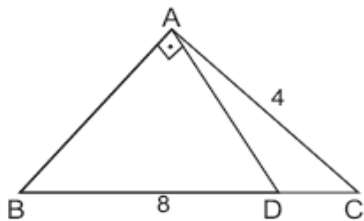


$|BC| = 1$ cm
 $|AB| = 4\sqrt{3}$ cm
 $|AE| = |EC|$

olduğuna göre, $|BE| = x$ kaç cm dir?

C : $\frac{7}{2}$

62)

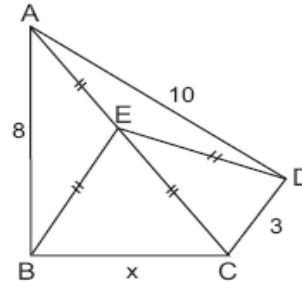


$m(\widehat{BAD}) = 90^\circ$
 $|AC| = 4$ cm
 $|BD| = 8$ cm

olduğuna göre, $\frac{m(\widehat{B})}{m(\widehat{C})}$ oranı kaçtır?

C : $\frac{1}{2}$

63)

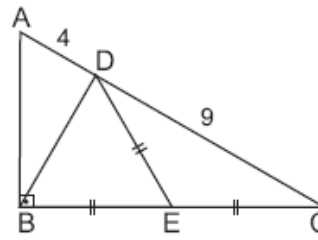


$|AD| = 10$ cm
 $|DC| = 3$ cm
 $|AB| = 8$ cm

olduğuna göre, x kaç cm dir?

C : $3\sqrt{5}$

64)



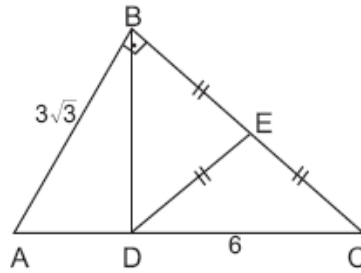
ABC dik üçgen

$|BE| = |EC| = |DE|$
 $|AD| = 4$ cm
 $|CD| = 9$ cm

olduğuna göre, $|AB| + |BC|$ toplamı kaçtır?

C : $5\sqrt{13}$

65)



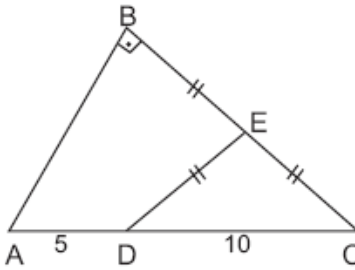
ABC dik üçgen

$|BE| = |EC| = |DE|$
 $|AB| = 3\sqrt{3}$ cm
 $|CD| = 6$ cm

olduğuna göre, $|DE|$ kaç cm dir?

C : $\frac{3\sqrt{6}}{2}$

66)



ABC dik üçgen

$|AB| \perp |BC|$
 $|BE| = |EC| = |DE|$
 $|AD| = 5$ cm
 $|CD| = 10$ cm
 $|BC| = x$

olduğuna göre, $|BC| = x$ kaç cm dir?

C : $5\sqrt{6}$