

1. $\sin(\pi - \alpha) = \sin \alpha$ 'dir.

$$\sin 150^\circ = \sin(180 - 30) = \sin 30^\circ$$

$$\Rightarrow \sin 30^\circ = \cos 60^\circ$$

$$\Rightarrow \boxed{\sin 150^\circ = \cos 60^\circ}$$

Not : $\sin(90 - \alpha) = \cos \alpha$ 'dır.

$$\Rightarrow \frac{\sin 150^\circ + \cos 60^\circ}{\cos 360^\circ + \sin 360^\circ} = \frac{\cos 60^\circ + \cos 60^\circ}{1 + 0}$$

$$= \frac{\frac{1}{2} + \frac{1}{2}}{1 + 0} = \frac{1}{1} = 1$$

Cevap: D

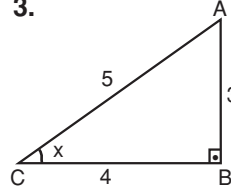
2. $\sin 25^\circ = \cos 65^\circ$ dir. (Birbirini 90° 'ye tamamlayan açılardan birinin sinüsü diğerinin kosinüsüne eşittir.)

$$\Rightarrow \frac{\sin 25^\circ + \cos 25^\circ}{\cos 65^\circ + \sin 65^\circ} = \frac{\cos 65^\circ + \sin 65^\circ}{\sin 65^\circ + \cos 65^\circ} = 1$$

bulunur. ($\cos 25^\circ = \sin 65^\circ$)

Cevap: A

3.



Dik üçgen çizelim:

$$\cos x = \frac{\text{Komşu dik kenar}}{\text{hipotenüs}}$$

$$\cos x = \frac{|BC|}{|AC|} = \frac{4}{5}$$

$$\Rightarrow |BC| = 4, |AC| = 5 \text{ olsun}$$

$$5^2 = 4^2 + |AB|^2 \rightarrow |AB| = 3$$

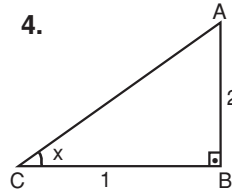
(Pisagor bağıntısı)

$$\tan x = \frac{\text{Karşı dik kenar}}{\text{Komşu dik kenar}}$$

$$\tan x = \frac{|AB|}{|BC|} = \frac{3}{4}$$

Cevap: B

4.



Dik üçgen çizelim:

$$\tan x = \frac{|AB|}{|BC|} = 2$$

$$|AB| = 2, |BC| = 1 \text{ olsun}$$

$$|AC|^2 = 2^2 + 1^2 \text{ (Pisagor)}$$

$$|AC| = \sqrt{5} \text{ olur.}$$

$$\sin x = \frac{|AB|}{|AC|} = \frac{2}{\sqrt{5}}, \cos x = \frac{|BC|}{|AC|} = \frac{1}{\sqrt{5}}$$

$$\Rightarrow \sin x \cdot \cos x = \frac{2}{\sqrt{5}} \cdot \frac{1}{\sqrt{5}} = \frac{2}{5}$$

Cevap: C

$$5. \quad \begin{array}{r} 1560^\circ \\ - 1440 \\ \hline 120^\circ \end{array} \left| \begin{array}{r} 360^\circ \\ 4 \end{array} \right.$$

$$1560^\circ = 4 \cdot (360^\circ) + 120^\circ$$

Esas ölçü

Cevap: A

$$6. \quad \tan 45^\circ = 1, \cot 45^\circ = 1$$

$$\sin 30^\circ = \frac{1}{2}, \cos 60^\circ = \frac{1}{2}$$

$$\frac{\tan 45^\circ}{\sin 30^\circ} + \frac{\cot 45^\circ}{\cos 60^\circ} = \frac{1}{\frac{1}{2}} + \frac{1}{\frac{1}{2}}$$

$$= 2 + 2 = 4$$

Cevap: C

$$7. \quad \boxed{\frac{D}{180^\circ} = \frac{R}{\pi}} \quad \text{formülünü kullanalım:}$$

$$= \frac{D}{180} = \frac{6\pi}{5\pi}$$

$$\frac{D}{180^\circ} = \frac{6\cancel{\pi}}{5\cancel{\pi}} \Rightarrow \frac{D}{180^\circ} = \frac{6}{5}$$

$$\Rightarrow D = \frac{6 \cdot 180}{5} \Rightarrow D = 216^\circ$$

Cevap: D

$$8. \quad \frac{D}{180^\circ} = \frac{R}{\pi} \quad \text{formülünü kullanalım:}$$

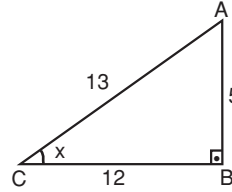
$$= \frac{D}{180} = \frac{\frac{4\pi}{3}}{\pi} \Rightarrow$$

$$\frac{D}{180^\circ} = \frac{4\cancel{\pi}}{3\cancel{\pi}} \Rightarrow \frac{D}{180^\circ} = \frac{4}{3}$$

$$\Rightarrow D = \frac{4 \cdot 180}{3} \Rightarrow D = 240^\circ$$

Cevap: C

9. Dik üçgen çizelim;



$$\tan x = \frac{|ABI|}{|BCI|} = \frac{5}{12} \Rightarrow$$

$$|ABI| = 5, |BCI| = 12 \text{ olsun}$$

$$|ACI|^2 = 5^2 + 12^2 \text{ (Pisagor)}$$

$$|ACI| = 13 \text{ bulunur.}$$

$$\sin x = \frac{|ABI|}{|ACI|} = \frac{5}{13}$$

$$\cos x = \frac{|BCI|}{|ACI|} = \frac{12}{13}$$

$$\frac{\sin x + \cos x}{\sin x - \cos x} = \frac{\frac{5}{13} + \frac{12}{13}}{\frac{5}{13} - \frac{12}{13}} = \frac{\frac{17}{13}}{\frac{-7}{13}}$$

$$= \frac{17}{13} \cdot \frac{13}{-7} = -\frac{17}{7}$$

Cevap: B

$$10. \tan x = \frac{\sin x}{\cos x} \text{ 'tir.}$$

$$\Rightarrow \frac{1}{\sin^2 x} - \frac{1}{\frac{\sin^2 x}{\cos^2 x}} = \frac{1}{\sin^2 x} - \frac{\cos^2 x}{\sin^2 x}$$

$$\Rightarrow \frac{1 - \cos^2 x}{\sin^2 x} = \frac{\sin^2 x}{\sin^2 x} = 1$$

$$\cos^2 x + \sin^2 x = 1$$

$$\sin^2 x = 1 - \cos^2 x \text{ 'tir.}$$

Cevap: A

$$11. \tan 60 = \frac{\sin 60}{\cos 60} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}}$$

$$= \sqrt{3}$$

$$\tan (2\pi - \alpha) = -\tan \alpha$$

$$\tan (360 - 60) = -\tan 60$$

$$= -\sqrt{3}$$

$$\sin (2\pi - \alpha) = -\sin \alpha$$

$$\sin (360 - 30) = -\sin 30$$

$$330^\circ$$

$$= -\frac{1}{2}$$

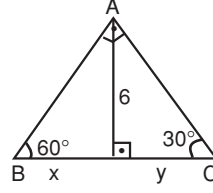
$$\Rightarrow \tan 60^\circ \cdot \tan 300^\circ - \sin 330^\circ =$$

$$= \sqrt{3} (-\sqrt{3}) - \left(-\frac{1}{2}\right)$$

$$= -3 + \frac{1}{2} = \frac{-5}{2}$$

Cevap: B

12.



$$\tan 60^\circ = \frac{|AH|}{|BH|} = \frac{6}{x}$$

$$\sqrt{3} = \frac{6}{x} \Rightarrow x = \frac{6}{\sqrt{3}}$$

$$\tan 30^\circ = \frac{|AH|}{|HC|} = \frac{6}{y}$$

$$\frac{1}{\sqrt{3}} = \frac{6}{y} \Rightarrow y = 6\sqrt{3}$$

$$\begin{aligned} \Rightarrow x + y &= \frac{6}{\sqrt{3}} + 6\sqrt{3} = 2\sqrt{3} + 6\sqrt{3} \\ &= 8\sqrt{3} \end{aligned}$$

Cevap: C

13. $\sin 47^\circ = \cos 43^\circ$ dir.

$$(\sin (90 - x) = \cos x)$$

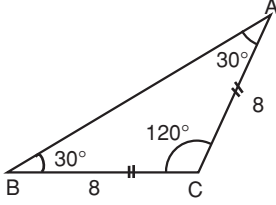
$$2 - \frac{\cos 45}{\cos 60} : \frac{\sin 47}{\cos 43} =$$

$$2 - \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} : \frac{\cos 43}{\cos 43} = 2 - \sqrt{2} : 1$$

$$= 2 - \sqrt{2}$$

Cevap: D

14.



Cosinüs teoreminden;

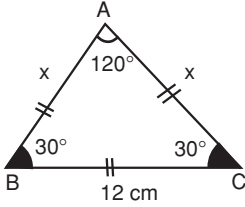
$$\begin{aligned} |AB|^2 &= 8^2 + 8^2 - 2 \cdot 8 \cdot 8 \cdot \cos 120^\circ \\ &= 64 + 64 - 2 \cdot 64 \cdot \left(\frac{-1}{2}\right) \\ &= 128 - 128 \cdot \left(\frac{-1}{2}\right) \end{aligned}$$

$$= 192$$

$$|AB|^2 = 192 \Rightarrow |AB| = 8\sqrt{3}$$

Cevap: B

15.


 ($120^\circ - 30^\circ - 30^\circ$ üçgeninden)

$$|BC| = x\sqrt{3} = 12 \Rightarrow$$

$$x = \frac{12}{\sqrt{3}} = \frac{12\sqrt{3}}{3} = 4\sqrt{3} \text{ bulunur.}$$

$$A(\widehat{ABC}) = \frac{1}{2} \cdot |AB| \cdot |AC| \cdot \sin 120^\circ$$

$$= \frac{1}{2} \cdot 4\sqrt{3} \cdot 4\sqrt{3} \cdot \frac{\sqrt{3}}{2} = 12\sqrt{3}$$

Cevap: A

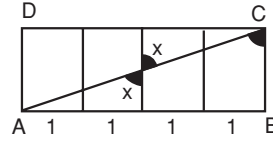
 16. $\sin 37^\circ = \cos 53^\circ$ dir.

$$(\sin(90 - x) = \cos x)$$

$$\sin 37^\circ = \cos 53^\circ \Rightarrow \frac{\sin 37^\circ}{\cos 53^\circ} = \frac{\cos 53^\circ}{\cos 53^\circ} = 1$$

Cevap: C

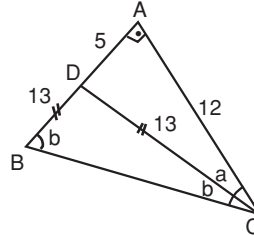
17.


 $\widehat{ACB} = x$ olur. (yöndeş açılar)

$$\tan x = \frac{4}{1} = 4$$

Cevap: A

18.



$$\tan a = \frac{|ADI|}{|ACI|} = \frac{5}{12} \Rightarrow$$

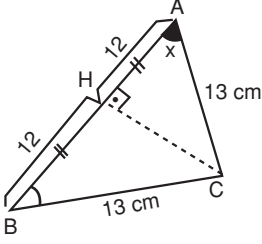
$$|ADI| = 5, |ACI| = 12 \text{ olur.}$$

$$\cot b = \frac{|ABI|}{|ACI|} = \frac{18}{12}$$

$$= \frac{3}{2} \text{ } (\widehat{ABC}'\text{ninde})$$

Cevap: C

19.



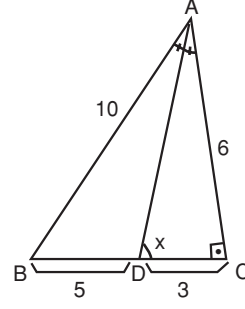
[CH] \perp [AB] olacak şekilde [CH] çizilir.

IAHI = IHBI olur. (İkizkenar üçgen yükseklik kenarortaydır.)

$$\cos x = \frac{IAHI}{IACI} = \frac{12}{13}$$

Cevap: A

20.



$$10^2 = 6^2 + IBCI^2 \Rightarrow IBCI = 8$$

$$\frac{IBDI}{IDCI} = \frac{10}{6} \quad (\text{Açıortay kuralı})$$

$$\frac{IBDI}{IDCI} = \frac{5}{3} \Rightarrow \tan x = \frac{6}{3} = 2$$

Cevap: A