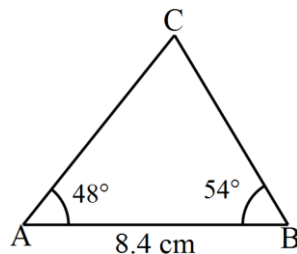


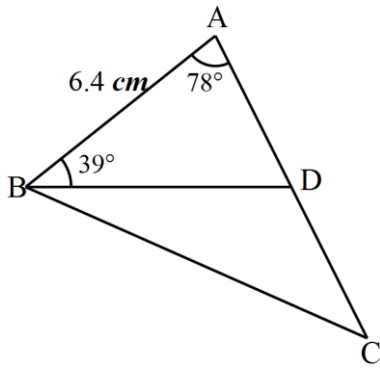


1. Solve the equation: $\sin(2x+10)^\circ = \frac{\sqrt{3}}{2}$ for $0^\circ \leq x \leq 360^\circ$
2. Solve for x in the equation: $\sin\left(\frac{5}{2}x\right)^\circ = -\frac{1}{2}$ for $0^\circ \leq x \leq 360^\circ$
3. Solve for x in the equation: $\tan x = 2\sin x$ for $-180^\circ \leq x \leq 180^\circ$
4. Find the value of x in the equation: $\cos(3x+180)^\circ = \frac{\sqrt{3}}{2}$ for $0^\circ \leq x \leq 180^\circ$
5. Solve for θ in the equation $-\frac{1}{4}\sin(2\theta+30)^\circ = 0.1607$ for $0^\circ \leq \theta \leq 360^\circ$
6. Given that $\cos \alpha = \frac{5}{13}$ and that $270^\circ \leq \alpha \leq 360^\circ$, evaluate $\tan \alpha + \sin \alpha$
7. If $\tan \theta = \frac{12}{5}$ and θ is reflex, find the value of $5\sin \theta + \cos \theta$
8. Find θ given that $2\cos 3\theta - 1 = 0$ for $0^\circ \leq x \leq 360^\circ$
9. Solve the equation: $2\cos 2(x+30)^\circ = -1$ for $0^\circ \leq x \leq 360^\circ$
10. Solve for θ in the equation: $\cos(2\theta+30)^\circ = -0.7660$ for $-180^\circ \leq \theta \leq 180^\circ$
11. Solve the equation $2\tan 2x \cos 2x + \sqrt{3} = 0$ for $-180^\circ \leq x \leq 180^\circ$.
12. Given that $3\tan^2\left(2x + \frac{2}{3}\pi\right)^c = 1$, find x when $0^\circ \leq x \leq 2\pi^c$. Give your answer in terms of π^c
13. A triangle ABC is such that $AB = 15\text{cm}$, $AC = 10\text{cm}$ and $\angle BAC = 135^\circ$. Calculate, correct to 1 decimal place, the length of BC and the size of angle ABC.
14. A triangle XYZ in which $XY = 12.4\text{cm}$, $YZ = 15.6\text{cm}$ and $\angle XYZ = 60^\circ$ is inscribed in a circle. Calculate the radius of the circle correct to 1 decimal place.
15. In the triangle below, $AB = 8.4\text{cm}$ and the angles at A and B are 48° and 54° respectively. Calculate the area of the triangle.



TRIGONOMETRY II By Mr. Patrick Mboya

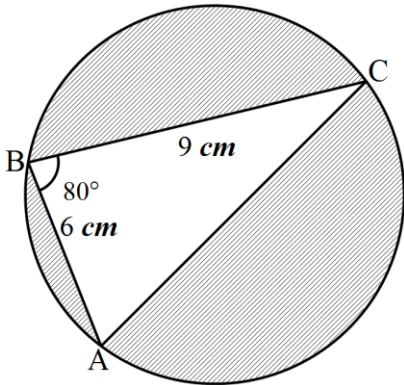
16. In the figure below, point D divides AC in the ratio 1:1. $AB = 6.4\text{cm}$, $\angle ABD = 39^\circ$ and $\angle BAD = 78^\circ$.



Calculate correct to 1 decimal place:

- (a) The length BD.
 (b) The length BC.

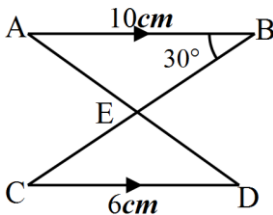
17. The figure below (not drawn to scale) shows a triangle ABC inscribed in a circle. $AB = 6\text{cm}$, $BC = 9\text{cm}$ and $\angle ABC = 80^\circ$.



Calculate to one decimal place:

- a) The length of AC.
 b) The radius of the circle.
 c) The area of the shaded segments.

18. In the figure below, AB is parallel to CD. BC and AD intersect at E. $AB = 10\text{cm}$, $CD = 6\text{cm}$, $BC = 7.2\text{cm}$ and $\angle ABC = 30^\circ$.



Calculate to 1 decimal place:

- (a) The length AE.
 (b) The size of angle CED.

19. A triangle ABC is such that $AB = 12\text{cm}$, $\angle CAB = 45^\circ$ and $\angle ABC = 60^\circ$. Calculate the area of the triangle ABC.

20. The area of a triangle ABC in which $AB = 4\text{cm}$ and $AC = 5\text{cm}$ is $4\sqrt{6}\text{cm}^2$. If the angle CAB is obtuse, calculate, without using mathematical tables or a calculator;

- (a) $\cos A$
 (b) The length BC

Answers

- | | |
|--|--|
| 1. $25^\circ, 55^\circ, 205^\circ, 235^\circ$ | 11. $-30^\circ, -60^\circ, 120^\circ, 150^\circ$ |
| 2. $84^\circ, 132^\circ, 228^\circ, 276^\circ$ | 12. $\frac{1}{4}\pi^c, \frac{3}{4}\pi^c, \frac{5}{4}\pi^c, \frac{7}{4}\pi^c$ |
| 3. $-60^\circ, 60^\circ$ | 13. $23.2\text{cm}, 17.8^\circ$ |
| 4. $50^\circ, 70^\circ, 170^\circ$ | 14. $r = 8.2\text{cm}$ |
| 5. $95^\circ, 145^\circ, 275^\circ, 325^\circ$ | 15. 21.68cm^2 |
| 6. $-3\frac{21}{65}$ | 16. (a) 7.0cm (b) 9.9cm |
| 7. -5 | 17. (a) 9.9cm (b) 5.0cm (c) 52.0cm^2 |
| 8. $20^\circ, 100^\circ, 140^\circ, 220^\circ, 260^\circ, 340^\circ$ | 18. (a) 6.5cm (b) 129.8° |
| 9. $30^\circ, 90^\circ, 210^\circ, 270^\circ$ | 19. 14.65cm^2 |
| 10. $-85^\circ, -125^\circ, 55^\circ, 95^\circ$ | 20. (a) $-\frac{1}{5}$ (b) 7cm |