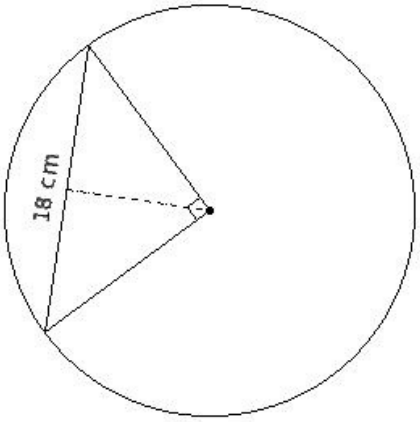
EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Trigonometrical Identities

Grade : ICSE Grade X

1. A chord of 18 cm subtends an angle of 90° at the centre. Calculate its shortest distance from the centre



(i) 11.0 cm (ii) 9.0 cm (iii) 10.0 cm (iv) 8.0 cm (v) 7.0 cm

2. Express $\cot 42°$ in terms of $\sec 42°$

(i) $\frac{\sqrt{\sec^2 42° - 1}}{\sec 42°}$ (ii) $\frac{1}{\sec 42°}$ (iii) $\frac{\sec 42°}{\sqrt{\sec^2 42° - 1}}$ (iv) $\frac{1}{\sqrt{\sec^2 42° - 1}}$ (v) $\sqrt{\sec^2 42° - 1}$

3. Given that $5\operatorname{cosec}\theta = 13$, find $\tan\theta$

(i) $\frac{12}{5}$ (ii) $\frac{12}{13}$ (iii) $\frac{5}{12}$ (iv) $\frac{13}{12}$ (v) $\frac{5}{13}$

4. If $\cot 6x = \tan((x+27))$, then $x =$

(i) 12 (ii) 10 (iii) 7 (iv) 8 (v) 9

5. Which of the following are true?

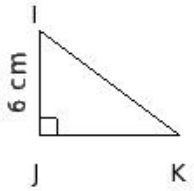
a) $\cos 45° = 1$
b) $\sin 45° = 1$
c) $\sin 0° = 1$
d) $\tan 90° = 1$
e) $\cos 0° = 1$
f) $\sin 90° = 1$
g) $\cos 90° = 1$
h) $\tan 0° = 1$

(i) {e,f} (ii) {a,e} (iii) {g,f,e} (iv) {c,d,e} (v) {b,f}

6. Express $\sin\theta$ in terms of $\cos\theta$

(i) $\frac{\sqrt{1-\cos^2\theta}}{\cos\theta}$ (ii) $\frac{1}{\cos\theta}$ (iii) $\sqrt{1-\cos^2\theta}$ (iv) $\frac{\cos\theta}{\sqrt{1-\cos^2\theta}}$ (v) $\frac{1}{\sqrt{1-\cos^2\theta}}$

7. In the given figure, if $IK - JK = 2$ cm, and $IJ = 6$ cm, find $\sin I$



(i) $\frac{2}{5}$ (ii) $\frac{4}{7}$ (iii) $\frac{4}{5}$ (iv) $\frac{6}{5}$ (v) $\frac{4}{3}$

8. Given $\sec F = \frac{17}{15}$, find $\tan F$

(i) $\frac{15}{8}$ (ii) $\frac{8}{17}$ (iii) $\frac{17}{8}$ (iv) $\frac{8}{15}$ (v) $\frac{15}{17}$

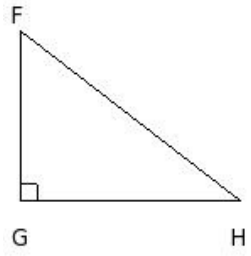
9. Given $\tan D = \frac{1}{35}\sqrt{35}$, find $\sin D$

(i) $\frac{1}{6}$ (ii) 6 (iii) $\sqrt{35}$ (iv) $\frac{1}{6}\sqrt{35}$ (v) $\frac{6}{35}\sqrt{35}$

10. Given that $4\cot\theta = 3$, find $\sec\theta$

(i) $\frac{4}{3}$ (ii) $\frac{5}{4}$ (iii) $\frac{3}{5}$ (iv) $\frac{4}{5}$ (v) $\frac{5}{3}$

11. From the given figure, find $\cot(90 - H)$



(i) $\frac{FG}{FH}$ (ii) $\frac{GH}{FH}$ (iii) $\frac{FH}{FG}$ (iv) $\frac{FH}{GH}$ (v) $\frac{FG}{GH}$

12. $\frac{\tan 48^\circ \cot 29^\circ}{\cot 42^\circ \tan 61^\circ} =$

(i) -1 (ii) $\tan 48^\circ$ (iii) 0 (iv) 1 (v) $\tan 29^\circ$

13. Express $\operatorname{cosec}\theta$ in terms of $\sin\theta$

(i) $\frac{\sqrt{1-\sin^2\theta}}{\sin\theta}$ (ii) $\sqrt{1-\sin^2\theta}$ (iii) $\frac{1}{\sin\theta}$ (iv) $\frac{\sin\theta}{\sqrt{1-\sin^2\theta}}$ (v) $\frac{1}{\sqrt{1-\sin^2\theta}}$

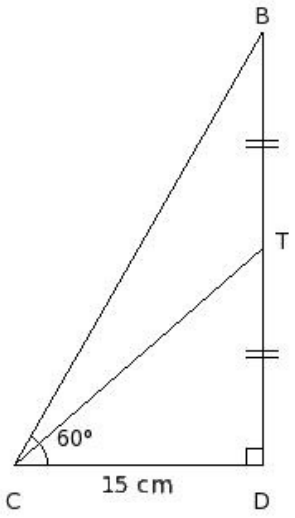
14. Given $\sec D = \frac{3}{4}\sqrt{2}$, find $\cos D$

(i) $\frac{2}{3}\sqrt{2}$ (ii) $2\sqrt{2}$ (iii) $\frac{1}{3}$ (iv) $\frac{1}{4}\sqrt{2}$ (v) 3

15. Express $\sin\theta$ in terms of $\cot\theta$

(i) $\sqrt{1 + \cot^2\theta}$ (ii) $\frac{\sqrt{1 + \cot^2\theta}}{\cot\theta}$ (iii) $\frac{1}{\cot\theta}$ (iv) $\frac{1}{\sqrt{1 + \cot^2\theta}}$ (v) $\frac{\cot\theta}{\sqrt{1 + \cot^2\theta}}$

16. In the given figure, $\triangle BCD$ is a right angle triangle with $\angle D = 90°$ and CD = 15 cm. T is the mid-point of BD. Find $\angle TCB$ using tables.



(i) 21° 7' (ii) 17° 7' (iii) 19° 7' (iv) 22° 7' (v) 16° 7'

17. $\sin I =$

(i) $\frac{1}{\operatorname{cosec} I}$ (ii) $\frac{1}{\cos I}$ (iii) $\frac{1}{\tan I}$ (iv) $\frac{1}{\sec I}$ (v) $\frac{1}{\cot I}$

18. Given $\cos B = \frac{4}{5}$, find $\sec B$

(i) $\frac{3}{5}$ (ii) $\frac{5}{3}$ (iii) $\frac{4}{3}$ (iv) $\frac{5}{4}$ (v) $\frac{3}{4}$

19. $\tan 60° \operatorname{cosec} 45° - \cos 90° \operatorname{cosec} 30° =$

(i) $\sqrt{3}$ (ii) 6 (iii) $\sqrt[4]{6}$ (iv) $\sqrt{6}$ (v) $\sqrt{8}$

20. Express $\sec\theta$ in terms of $\tan\theta$

(i) $\frac{\tan\theta}{\sqrt{1 + \tan^2\theta}}$ (ii) $\frac{\sqrt{1 + \tan^2\theta}}{\tan\theta}$ (iii) $\frac{1}{\sqrt{1 + \tan^2\theta}}$ (iv) $\frac{1}{\tan\theta}$ (v) $\sqrt{1 + \tan^2\theta}$

21. Given that $13\sin\theta = 5$, find $\cos\theta$

(i) $\frac{12}{13}$ (ii) $\frac{12}{5}$ (iii) $\frac{13}{5}$ (iv) $\frac{13}{12}$ (v) $\frac{5}{12}$

22. Given $\cos J = \frac{1}{2}\sqrt{3}$, find $\tan J$

(i) $\frac{2}{3}\sqrt{3}$ (ii) $\sqrt{3}$ (iii) $\frac{1}{3}\sqrt{3}$ (iv) $\frac{1}{2}$ (v) 2

23. Given $\tan M = \frac{2}{77}\sqrt{77}$, find $\cos M$

(i) $\frac{2}{9}$ (ii) $\frac{1}{2}\sqrt{77}$ (iii) $\frac{1}{9}\sqrt{77}$ (iv) $\frac{9}{77}\sqrt{77}$ (v) $\frac{9}{2}$

24. Which of the following are true?

a) $\sin(180 + \theta) = \cos\theta$
b) $\cos(180 + \theta) = -\cos\theta$
c) $\sin(180 + \theta) = -\sin\theta$
d) $\tan(180 + \theta) = \cot\theta$
e) $\tan(180 + \theta) = \tan\theta$
f) $\cos(180 + \theta) = \sin\theta$

(i) {f,a,e} (ii) {d,b,c} (iii) {d,c} (iv) {a,b} (v) {b,c,e}

25. Given $\cot A = \frac{12}{5}$, find $\tan A$

(i) $\frac{13}{5}$ (ii) $\frac{12}{13}$ (iii) $\frac{5}{12}$ (iv) $\frac{13}{12}$ (v) $\frac{5}{13}$

Assignment Key

1) (ii)	2) (iv)	3) (iii)	4) (v)	5) (i)	6) (iii)
7) (iii)	8) (iv)	9) (i)	10) (v)	11) (v)	12) (iv)
13) (iii)	14) (i)	15) (iv)	16) (iii)	17) (i)	18) (iv)
19) (iv)	20) (v)	21) (i)	22) (iii)	23) (iii)	24) (v)
25) (iii)					