

33° **52**′ **37′′S** 151° 06' 04"E

JE MATHS

ADV

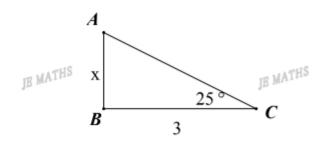


- Find the exact missing angles and sides.

1. Find the **exact** missing side x in the $Rt\Delta ABC$, with $\angle B = 90^{\circ}$.

(a)

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(b)

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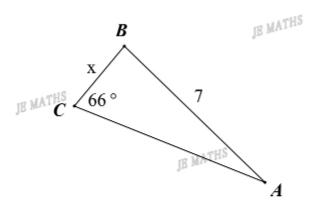
B 4 JR MATHS C

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(c)

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- 2. Given that $\angle BAD = \angle ACB = 35^{\circ}$ in the $Rt\Delta ABC$.
 - (a) Find CB in terms of x.

. . . .

(b) Find BD in terms of x.

A X JB MATHS A 35° C

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(c) Hence, find CD in terms of x.

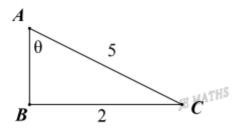
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3. Find the exact missing angle θ in the $Rt\Delta ABC$, with $\angle B = 90^{\circ}$.

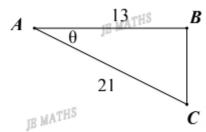
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(b)

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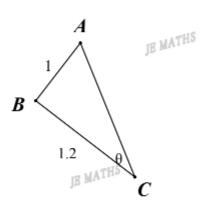


(c)

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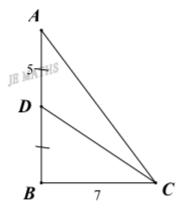
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- 4. Given that $\Delta D = DB$ in the $Rt\Delta \Delta BC$, with $\angle B = 90^{\circ}$.
 - (a) Find ∠BCD in the exact form.

(b) Find ∠BCA in the exact form.



(c) Hence, find $\angle ACD$, to the nearest minutes. THS

- Given that α is an acute angle and $\tan \alpha = \frac{1}{2\sqrt{2}}$.
 - (a) Find the missing side.

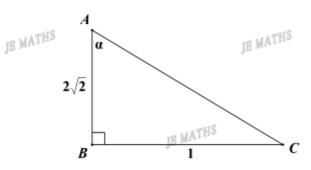
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- (b) Find the exact value of
 - (i) cos α

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(c) Hence, show that $\sin^2 \alpha + \cos^2 \alpha = 1$.

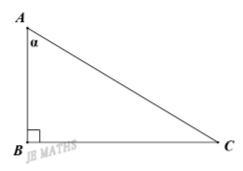


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- Given that α is an acute angle and $\sec \alpha \neq \frac{2\sqrt{3}}{3}$.
 - (a) Show all the information in $Rt\Delta ABC$ and find the missing side. II JE MA





- (b) Find the exact value of:
 - (i) cos ecθ _{JB MATHS}
 - (ii) $\cot \theta$
- (c) Hence, show that $1 + \cot^2 \alpha = \cos ec^2 \alpha$. It MATHS

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7.	Use a c	aicuiatoi	to evaluate:	(48128)

(a)
$$\frac{6.7}{\cos 67^{\circ}13^{\circ}}$$

(b) 13cot13.5°

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- Special angles for 6 trig ratios: 30°, 45°, 60°.

8. Evaluate the following without using the calculator:

(a)
$$\sin^2 45^\circ + \cos^2 45^\circ$$

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(b) $\sin 30^{\circ} \cos 60^{\circ} - \cos 30^{\circ} \sin 60^{\circ}$

JE MATHS

(c)
$$\frac{2 \tan 60^{\circ}}{1 - \tan^2 60^{\circ}} \mathbb{E}^{MATHS}$$

(b) $\cos ec^2 60^\circ - \cot^2 60^\circ$

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9. Show that

(a)
$$1-\sin^2 60^\circ = \cos^2 60^\circ$$
 JE MATHS

(b) $1 + \tan^2 45^\circ = \sec^2 45^\circ$

JE MATHS

JE MATHS

(c) $\cos 60^{\circ} = 1 - 2\sin^2 30^{\circ}$

(d) $1 + \cot^2 30^\circ = \cos ec^2 30^\circ$

JE-MATHS

JE MATHS

- Six trig ratios in the unit circle:

10. Write down the values of the six trig ratios of the given angle θ in each unit circle.

(a) ____

$$\sin \theta =$$
______, $\cos ec\theta =$ ______

JE MATHS

$$\cos \theta =$$
______, $\sec \theta =$ ______

$$\tan \theta = \underline{\hspace{1cm}}, \cot \theta = \underline{\hspace{1cm}}_{\mathbb{JE} \, MATHS}$$



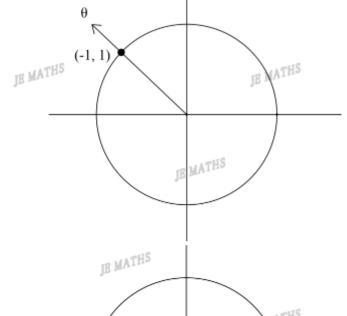
$$\sin \theta =$$
______, $\cos ec\theta =$ ______

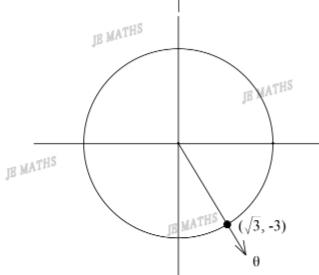
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$$\cos\theta =$$
_______, $\sec\theta =$ _______

$$\tan \theta = \underline{\hspace{1cm}}$$
, $\cot \theta = \underline{\hspace{1cm}}$

JE MATHS

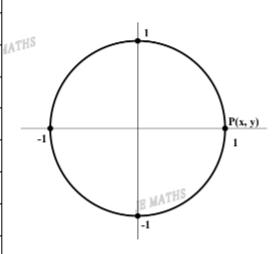




- Boundary angles.

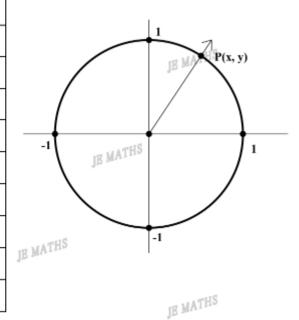
11. Fill in the **boundary-angletable**of P(x,y) in a **unit circle**.

	0°	90°	180°	270°	360°
х	1	0	-1	0	1
у		,		,	
r	-			,	-
$\sin \theta$	-	-	-	-	-
$\cos \theta$		1		-	-
$\tan \theta$		-		-	-
$\cos ec\theta$		-		_	-
$\sec \theta$	-	-	-	-	-
$\cot \theta$	-	-		-	-



- Sign of trig (ASTC):
- 12. Fill in the **trigsigntable** of P(x,y) in aunit circle.

1 st	2 nd	3 rd	4 th
+	-	- 1	+
		1	1
1	i	,	-
		-	
	-	2	-
-	-	-	_
-	-	-	-
	-	-	-
_	-	-	
	1 st +		



- Find the exact value of a special trig by using the related angle:
- 13. Find the exact value of the following basic trig ratio by using the related angle:
 - (a) sin(225°)

(b) cos(330°)

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(c) tan(-150°)

(d) cos(-315°)

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(e) sin 690°

(f) tan 600°

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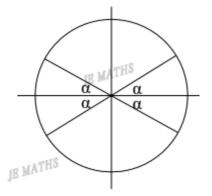
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- 14. Find the exact value of the following reciprocal trig ratio by using the related angle:
 - (a) sec 210°

(b) cos ec135°



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(c) cos ec(-60°)

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(d) cot(-240°)





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(e) cot 270°

IB MATHS sec 90°

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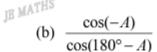
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- Trig reduction formulae: IB MATHS
- 15. Fill in the following trig reduction formulaetable for 6 trig ratios with an acute angle A.

	180 ºA	180 °+A	360 ºA
sin	sinA	-sinA	-sinA
cos	-	-	-
tan	-	-	-
cos ec		-	7
sec	-	7	-
cot			-

16. Simplify the following basic trig expressions in terms of the acute angle A.

 $\sin(180^{\circ} - A)$ $\sin(360^{\circ} - A)$





(c)
$$\frac{\sin(180^\circ + A)\cos A}{\sin A\cos(180^\circ - A)}$$

(d)
$$\frac{\sin(180^{\circ} + A)\sin(360^{\circ} + A)}{\sin(-A)\cos(180^{\circ} - A)}$$

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17. Simplify the following reciprocal trig expressions in terms of the acute angle A.

(a)
$$\frac{\sec(180^{\circ} + A)}{\sec(180^{\circ} - A)}$$

(b) $\frac{\sec(360^{\circ} - A)}{\cos ec(180^{\circ} + A)}$

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Given that sin15° ≈ 0.25 and cos15° ≈ 0.97, find the approximate value for:

(a) sin165°

18 MA (b) cos 195°

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JE MATHS

- (c) 2sin165°cos165°
- JE MATHS
- (d) sec195°+cos ec195° (1dp)

JE MATHS

19. If $\alpha = -60^{\circ}$ and $\beta = -120^{\circ}$, show that $\sin(A+B) = \sin A \cos B + \cos A \sin B$.

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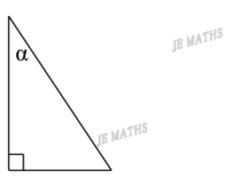
- Find the exact value of a special trig by using the related angle:

20. If $\angle A$ is an **obtuse** angle and $\sin A = \frac{1}{3}$, find, without using a calculator, the value of

(a) cos A



JE MATHS



(b) tan A

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JE MATHS

21. If $\angle B$ is in the 4^{th} quadrant and $B = -\frac{\sqrt{7}}{3\sqrt{2}}$, find, without using a calculator, the value of

(a) sin B

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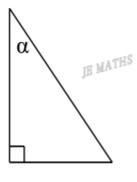
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(b) cos B



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22. Given that $\tan \theta = \frac{MAT}{\sqrt{3}}$.

(a) Which quadrantsare θ at?

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(b) Hence, find $\sin \theta$.

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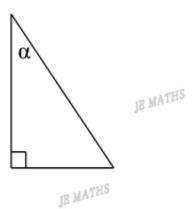
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- 23. Given that $\cos \theta = -\frac{5}{6}$ and $\sin \theta > 0$.
 - (a) Which quadrant is θ at?



(b) Hence, find $\tan \theta$.





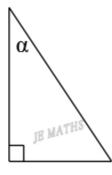
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24. If $\cot \theta = \frac{1}{k}$ where k > 0, find possible values of $\cos ec\theta$.

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IB MATHS



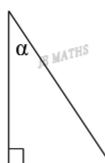


- 25. Given that $\cos ec\theta = -\frac{3}{2}$ and $90^{\circ} < \theta < 270^{\circ}$ find:
 - (a) $\sec \theta$.

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JE MATHS



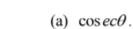
(b) $\cot \theta$.

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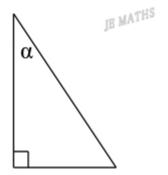
26. Given that $\sec \theta = \frac{q}{p}$, with θ a 4th quadrant angle, p and q are all positive. Find:



---- JE MATHS



(b) $\cot \theta$.



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