

Name:

Level 2 Further Maths



Trigonometric Equations Corbettmaths

Ensure you have: Pencil or pen

### Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Revision for this topic

[www.corbettmaths.com/more/further-maths/](http://www.corbettmaths.com/more/further-maths/)



1. Solve  $\sin\theta = 0.75$  for  $0^\circ \leq \theta \leq 180^\circ$

.....  
(2)

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2. Solve  $\tan\theta = 1.4$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(2)

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3. Solve  $\cos\theta = -0.9$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(2)

4. Solve  $2\tan\theta = 1.44$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(3)

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5. Solve  $3\cos\theta = 1$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(3)

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6. Solve  $2 + \sin\theta = 1.05$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(3)

7. Solve  $8\sin\theta - 5 = 0$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(3)

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8. Solve  $\cos^2 x = \frac{1}{4}$  for  $0^\circ \leq x \leq 360^\circ$

.....  
(3)

9. Solve  $64\sin^2x = 25$  for  $0^\circ \leq x \leq 360^\circ$

.....  
(4)

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10. Solve  $3\tan^2\theta - 1 = 0$  for  $0^\circ \leq \theta \leq 180^\circ$

.....  
(4)

11. Solve  $5\sin x = 4\cos x$  for  $0^\circ \leq x \leq 360^\circ$

.....  
(4)

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12. Solve  $10\cos\theta + 4\sin\theta = 0$  for  $90^\circ \leq \theta \leq 360^\circ$

.....  
(4)

13. Solve  $-\cos x = 8\sin x$  for  $0^\circ \leq x \leq 360^\circ$

.....  
(4)

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14. Solve  $\tan^2 x - 2\tan x = 0$  for  $0^\circ \leq x \leq 360^\circ$

.....  
(5)

15. Solve  $4\cos^2\theta - 3\cos\theta = 0$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(4)

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16. Solve  $2\cos^2\theta - \cos\theta - 1 = 0$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(4)



17. Solve  $4\sin^2\theta + 4\sin\theta - 3 = 0$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(4)

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18. Solve  $5\tan^2\theta - 6\tan\theta = -1$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(5)

19. (a) Prove  $\cos^2 x - 2\sin^2 x \equiv 3\cos^2 x - 2$

(2)

(b) Hence, work out the values of  $x$  between  $0^\circ$  and  $360^\circ$  for which

$$\cos^2 x - 2\sin^2 x = 0$$

.....  
(4)

20. (a) Show that  $2\cos^2\theta \equiv 2 - 2\sin^2\theta$

(2)

(b) Hence solve  $2\cos^2\theta - \sin\theta = 1$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(4)

21. Show that  $3\cos^2\theta \equiv 3 - 3\sin^2\theta$

(2)

(b) Hence solve  $3\cos^2\theta - 5\sin\theta = 1$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(4)

22. Solve  $6\sin^2\theta + 7\cos\theta - 8 = 0$  for  $0^\circ \leq \theta \leq 360^\circ$

.....  
(7)