# 3.3 Further Trigonometric Identities and Equations: 10-minute Pack

AQA 8365 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** Angle x is acute, and sin(x) = 3/5.

**(a)** Show that cos(x) = 4/5. **(2)**

**(b)** Hence find the exact value of tan(x). **(1)**

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**(Total for Question 1 is 3 marks)**

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**2** Write down the exact value of cos(45 degrees).

**(Total for Question 2 is 1 mark)**

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**3** State the value of $\sin^2$(30 degrees) + $\cos^2$(30 degrees).

**(Total for Question 3 is 1 mark)**

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**4** Angle x is acute, and sin(x) = 5/13. Find the exact value of cos(x).

**(Total for Question 4 is 2 marks)**


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**5** Which of the following is equivalent to $1 - \sin^2(x)$?

- ☐ A) $\cos^2(x)$
- ☐ B) $\tan^2(x)$
- ☐ C) $-\cos^2(x)$
- ☐ D) $\sin^2(x) - 1$

**(Total for Question 5 is 1 mark)**

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**6** Solve $2\cos(x) = 1$ for $0 \leq x \leq 360$, giving all solutions.

**(Total for Question 6 is 2 marks)**


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# Mark scheme · 3.3 Further Trigonometric Identities and Equations: 10-minute Pack

## Question 1

(a) use $\sin^2(x) + \cos^2(x) = 1$ to get $\cos^2(x) = 1 - (3/5)^2 = 16/25$ **M1**

(a) cos(x) = 4/5 (positive root, since x is acute), cso **A1**

**(a) Answer: 4/5**

(b) tan(x) = 3/4 oe ft from part (a) **B1**

**(b) Answer: 3/4**

## Question 2

$\sqrt{2}/2$ oe (e.g. $1/\sqrt{2}$) **B1**

**Answer: $\sqrt{2}/2$**

## Question 3

1 cao **B1**

**Answer: 1**

## Question 4

use $\sin^2(x) + \cos^2(x) = 1$ to get $\cos^2(x) = 1 - (5/13)^2 = 144/169$ **M1**

cos(x) = 12/13 (positive root, since x is acute), cso **A1**

**Answer: 12/13**

## Question 5

A) $\cos^2(x)$ **B1**

**Answer: A) $\cos^2(x)$**

## Question 6

rearrange to cos(x) = 0.5 **M1**

x = 60 and x = 300, both required cao **A1**

**Answer: x = 60, 300**


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