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| **Exact Trig Values - Worksheet** | |

# Skill

**Group A - Sine**

Write down the exact trig values for:

**1)** sin(0) **2)** sin(30) **3)** sin(45)

**4)** sin(60) **5)** sin(90)

# Group B - Cosine

Write down the exact trig values for:

**1)** cos(0) **2)** cos(30) **3)** cos(45)

**4)** cos(60) **5)** cos(90)

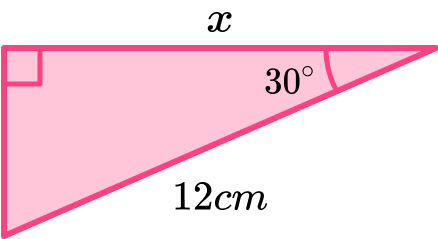
# Group C - Tangent

Write down the exact trig values for:

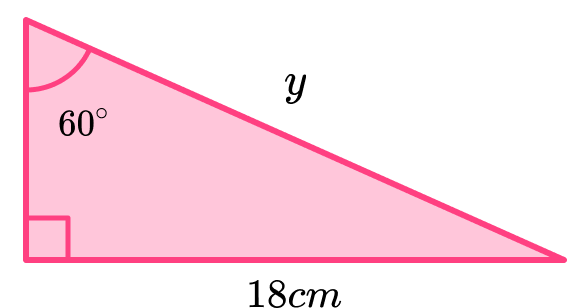
**1)** tan(0) **2)** tan(30) **3)** tan(45)

**4)** tan(60)

# Applied

1. **(a)** Find the exact value of cos(0) + sin(90).
   1. Find the exact value of cos(30) + sin(60).
2. **(a)** Find the exact value of tan(45) + sin(45). Write your answer as a single fraction.
   1. Find the exact value of sin(30) + tan(60). Write your answer as a single fraction.
3. **(a)** Find the exact value of 4 cos(60).
   1. Find the exact value of 15 tan(30).
4. **(a)** Use trigonometry in the diagram below to show that 𝑥 = 6

3

* 1. Use trigonometry in the diagram below to show that 𝑦 = 12

3

1. What is the exact value of tan(30)? Circle your answer.

|  |  |  |
| --- | --- | --- |
| 2 | 1 | 3 |
| 2 | 2 | 3 |

3

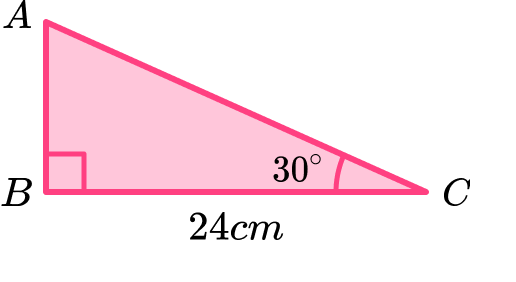
# (1 mark)

1. Calculate the exact value of sin(60) + tan(60). Simplify your answer by writing it as a single term.

….……………

# (2 marks)

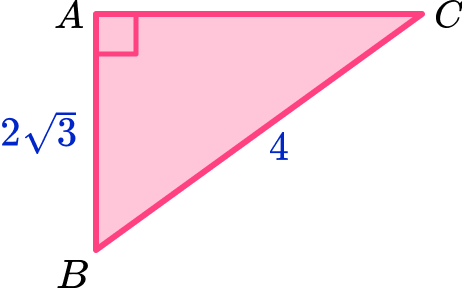
1. Use trigonometry to show that AB is 8 3. Diagram NOT to scale.



….……………

# (2 marks)

1. The diagram shows a right-angled triangle.

 Diagram NOT to scale.

Use trigonometry to show that angle ABC is 45◦.

….……………

# (2 marks)

**Exact Trig Values - Answers**

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| --- | --- | --- |
|  | **Question** | **Answer** |
|  | **Skill Questions** |  |
| **Group A** | Write down the exact trig values for: |  |
|  | **1)** sin(0) | **1)** 0 |
|  | **2)** sin(30) | **2)**  1  2 |
|  | **3)** sin(45) | **3)**  2 (or 1 ) |
|  |  | 2 2 |
|  | **4)** sin(60) | **4)**  3  2 |
|  | **5)** sin(90) | **5)** 1 |
| **Group B** | Write down the exact trig values for: |  |
|  | **1)** cos(0) | **1)** 1 |
|  | **2)** cos(30) | **2)**  3  2 |
|  | **3)** cos(45) | **3)**  2 (or 1 ) |
|  |  | 2 2 |
|  | **4)** cos(60) | **4)**  1  2 |
|  | **5)** cos(90) | **5)** 0 |
| **Group C** | Write down the exact trig values for: |  |
|  | **1)** tan(0) | **1)** 0 |
|  | **2)** tan(30) | **2)**  3 (or 1 ) |
|  |  | 3 3 |
|  | **3)** tan(45) | **3)** 1 |
|  | **4)** tan(60) | **4)** 3 |

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| **Exact Trig Values - Answers** | |

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|  | **Question** | **Answer** | |
|  | **Applied Questions** |  | |
| **1)** | 1. Find the exact value of cos(0) + sin(90). 2. Find the exact value of cos(30) + sin(60). | **a)**  **b)** | 1 + 1 = 2  3 + 3 = 3  2 2 |
| **2)** | 1. Find the exact value of tan(45) + sin(45). Write your answer as a single fraction. 2. Find the exact value of sin(30) + tan(60). Write your answer as a single fraction. | **a)**  **b)** | 1 + 2 = 2+ 2  2 2  1 + 3 = 1+2 3  2 2 |
| **3)** | 1. Find the exact value of 4 cos(60). | **a)** | 4 ×  1 = 2  2 |
|  | **b)** Find the exact value of 15 tan(30). | **b)** | 15 × 3 = 5 3  3 |
| **4)** | 1. Use trigonometry in the diagram below to show that 𝑥 = 6 3  1. Use trigonometry in the diagram below to show that 𝑦 = 12 3 | 1. cos(θ) = 𝐴𝑑𝑗𝑎𝑐𝑒𝑛𝑡   𝐻𝑦𝑝𝑜𝑡𝑒𝑛𝑢𝑠𝑒  cos(30) = 𝑥  12  𝑥 = 12 × cos(30)  = 12 × 3 = 6 3  2   1. sin(θ) = 𝑂𝑝𝑝𝑜𝑠𝑖𝑡𝑒   𝐻𝑦𝑝𝑜𝑡𝑒𝑛𝑢𝑠𝑒  sin(60) =  18  𝑦  𝑦 = 18 ÷ sin(60)  = 18 ÷ 3 = 12 3  2 | |

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| GCSE Maths Revision | Geometry and Measure |  |
| **Exact Trig Values - Mark Scheme** | |

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| --- | --- | --- | --- |
|  | **Question** | **Answer** | |
|  | **Exam Questions** |  | |
| **1)** | What is the exact value of tan(30)? Circle your answer.  2 1 3 3  2 2 3 | 3 3 | **(1)** |
| **2)** | Calculate the exact value of sin(60) + tan(60). | 3 + 3 | **(1)** |
|  | Simplify your answer by writing it as a single term. | 2  = 3 3  2 | **(1)** |
| **3)** | Use trigonometry to show that AB is 8 3 𝑐𝑚 .  Diagram NOT to scale. | tan(θ) = 𝑂𝑝𝑝𝑜𝑠𝑖𝑡𝑒  𝐴𝑑𝑗𝑎𝑐𝑒𝑛𝑡  tan(30) = 3  3  𝐴𝐵 = 24 × 3 = 8 3  3 | **(1)**  **(1)** |
| **4)** | The diagram shows a right-angled triangle.  Diagram NOT to scale. Use trigonometry to show that ABC is 45◦. | cos(θ) = 𝐴𝑑𝑗𝑎𝑐𝑒𝑛𝑡  𝐻𝑦𝑝𝑜𝑡𝑒𝑛𝑢𝑠𝑒  cos(𝐴𝐵𝐶) = 2 3 = 3  4 2  cos(45) = 3  2  So ABC is 45𝑜 | **(1)**  **(1)** |

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