5. E · Trigonometry

Starter Quiz ·

AQA · A-Level · Mathematics

Name: _____ Score: _____

1. Find the hypotenuse when the legs are 3 and 4.

   _____

2. For r=4 and θ=0.5 radians, find arc length.

   _____

3. Using the small-angle formula, approximate sin(0.2 radians).

   _____

4. Find sec($2\pi/3$).

   _____

5. If secθ=2 and θ is acute, find $\tan^2\theta$.

   _____

6. Cosine of a sum equals the sum of the two cosine values.

   ☐ True ☐ False

7. The amplitude of a cosθ+b sinθ is |a|+|b|.

   ☐ True ☐ False

8. Solving sin2x on one full turn of 2x finds every x solution on $[0,2\pi)$.

   ☐ True ☐ False

9. The sine rule pairs each side with any angle in the triangle.

   ☐ True ☐ False

10. A transformed tangent graph has a finite amplitude and can be joined across its vertical asymptotes.

    ☐ True ☐ False

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Answers ·

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1. **5.0**

   Pythagoras gives $\sqrt{(3^2+4^2)}=5$.

2. **2.0**

   Arc length=rθ=4×0.5=2.

3. **0.2**

   sin$\theta\approx\theta$, with θ=0.2 radians.

4. **-2.0**

   cos($2\pi/3$)=$-1/2$, so its reciprocal is -2.

5. **3.0**

   $\tan^2\theta=\sec^2\theta-1=4-1=3$.

6. **False**

   cos(A+B)=cos A cos B−sin A sin B, which is not cos A+cos B.

7. **False**

   The amplitude is R=$\sqrt{(a^2+b^2)}$: for 3cosθ+4sinθ it is 5, not 7.

8. **False**

   If x runs over $[0,2\pi)$, then 2x runs over $[0,4\pi)$, so solve for 2x over two full turns.

9. **False**

   Each side is paired with the angle opposite it: a/sin A=b/sin B.

10. **False**

    A tangent graph has no amplitude, and its branches must not be joined across asymptotes.