

Solutions

2.1 Arc length= $r\theta=4\times 0.5=2$.

2.2 Sector area= $r^2\theta/2=16\times 0.5/2=4$.

2.3 The two solutions are $\pi/6$ and $5\pi/6$ in the stated interval.

2.4 False. A calculator's inverse sine gives one principal value. It does not give every solution. Dividing by $\sin x$ can discard solutions where $\sin x=0$; check that case first.

2.5 A The angle subtended by an arc whose length equals the radius.

3.1 Factor $(2 \sin x + 1)(\sin x - 1) = 0$. $\sin x = 1$ gives $\pi/2$; $\sin x = -1/2$ gives $7\pi/6, 11\pi/6$. Both allowed roots are considered and the endpoint interval is respected.