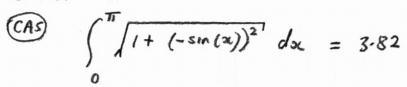# Sample solutions to the 2022 VCAA NHT papers

Specialist Mathematics Examination 2

Question 9

The arc length of the curve given by $y = \cos(x)$ from $x = 0$ to $x = \pi$ is closest to

A. 2.00
B. 3.14
C. 3.82
D. 4.00
E. 4.44

(CAS)

$$\int_0^\pi \sqrt{1 + (-\sin(x))^2} \, dx = 3.82$$

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Mathematical Methods Examination 2

Question 3

The function f with rule $f(x) = 2 \log_e(16 - x)$ has a maximal domain given by

A. $x \in (16, \infty)$
B. $x \in (-\infty, 4)$
C. $x \in (4, \infty)$
D. $x \in (-4, 4)$
E. $x \in (-\infty, 16)$

$16 - x > 0$
$16 > x$
$x < 16$

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Further Mathematics Examination 1 Module 2 – Networks and Decision Mathematics

Question 2

A manufacturing business employs six different drivers to deliver their products to 10 different stores.
This delivery structure could be represented graphically by

A. a spanning tree.
B. an Eulerian trail.
C. a Hamiltonian path.
D. a complete graph.
E. a bipartite graph. *(as there are two separate sets : drivers and stores)*

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