1. Steve and Dale want to purchase the same Jet Ski that costs $15,900 US.

   Steve invested $x US in an account that pays an annual interest of 2.9% compounded monthly. After 10 years, he will have $15,900 US in the account.

   Dale invested $8,000 US for *n* years. The investment has an annual interest rate of 2.5% compounded quarterly. After *n* years, the investment will be worth $15,900 US.

   (a) Calculate Steve's initial investment, x, to two decimal places (3 marks)

   (b) Find the value of *n* (3 marks)

Mark scheme:

(a) $15900 = x\left(1 + \frac{.029}{12}\right)^{12 \cdot 18}$ (M1) Use of compound interest formula

(A1) Correct Substitutions

$x = \$11{,}901.55$ (A1)

or

Finance Solver:

N = 10
I = 2.9
FV = +/- 15900
PY = 1
CY = 12

(A1) for CY = 12
(M1) for all other correct entries

*x* = $11,901.55 (A1)

(b) $15900 = 8000\left(1 + \frac{.025}{4}\right)^{n \cdot 4}$

(M1) Use of compound interest formula
(A1) Correct substitutions

$x = 28$ years

(A1)

or

Finance Solver

I = 2.5
PV = 8000
FV = -15900
PY = 1
CY = 4

(A1) for CY = 4
(M1) for all other correct entries

*x* = 28 years

(A1)