1. The cost c, in Australian dollars (AUD), of renting a bungalow for n weeks is given by the linear relationship $c = nr + s$, where s is the security deposit and r is the amount of rent per week.

Ana rented the bungalow for 12 weeks and paid a total of 2925 AUD.

Raquel rented the same bungalow for 20 weeks and paid a total of 4525 AUD.

Find the value of

(a) r, the rent per week;

(b) s, the security deposit.

Working:

Answers:

(a) .....

(b) .....

(Total 8 marks)

2. Keisha had 10 000 USD to invest. She invested m USD at the *Midland Bank*, which gave her 8% annual interest. She invested f USD at the *First National Bank*, which gave 6% annual interest. She received a total of 640 USD in interest at the end of the year.

(a) Write two equations that represent this information.

(b) Find the amount of money Keisha invested at each bank.

Working:

Answers:

(a) .....

(b) …….....

(Total 8 marks)

3. The fourth term of an arithmetic sequence is 12 and the tenth term is 42.

(a) Given that the first term is u_1 and the common difference is d, write down two equations in u_1 and d that satisfy this information.

(b) Solve the equations to find the values of u_1 and d.

Working:

Answers:

(a) .....

.....

(b) u_1 = ...

d = ...

(Total 8 marks)

4. Jacques can buy six CDs and three video cassettes for $163.17
or he can buy nine CDs and two video cassettes for $200.53.

(a) Express the above information using two equations relating the price of CDs and the price of video cassettes.

(b) Find the price of one video cassette.

(c) If Jacques has $180 to spend, find the exact amount of change he will receive if he buys nine CDs.

Working:

Answers:

(a) .....

(b) .....

(c) .....

(Total 6 marks)

1. (a) $2925 = 12r + s$ (M2)
$4525 = 20r + s$ (M2)

$1600 = 8r$
$200 = r$ (A2)(C6)

(b) $2925 = 12(200) + s$
$525 = s$ (A2)(C2)

Note: *Award (C2)(C2) if the candidate correctly solves an incorrect system of equations.*

[8]

2. (a) $0.08\,m + 0.06\,f = 640$ (A2) (C2)
$m + f = 10\,000$ (A2) (C2)

(b) $8\,m + 6\,f = 64\,000$
$-8\,m - 8\,f = 80\,000$ (M1)
$-2\,f = -16\,000$ (M1)(C2)
$f =$ 8000 or $8000 at First National Bank (A1)
$m =$ 2000 or $2000 at Midland Bank (A1)(C2)

Note: *Allow* ***ft*** *from part (a).*

[8]

3. (a) $u_1 + 3d = 12$ (A1)(A1)
$u_1 + 9d = 42$ (A1)(A1) (C4)

Note: *Award (A1) for left hand side correct, (A1) for right hand side correct.*

(b) $6d = 30$ (A1)
$d = 5$ (A1)
$u_1 = –3$ (M1)(A1)

Note: *Follow through (ft) from candidate's equations.*

[8]

4. (a) 6C+3V = 163.17 (A1)

9C+2V = 200.53 (A1) (C2)

Note: *If* ***both*** *addition signs missing, award* (A0)(A1)*(ft)*

(b) *GDC use is expected.*

Solve simultaneously to find V = \$17.69 (\$17.7) (M1)(A1)(ft) (C2)

\$18.35 here receives (A0)

Note: *A reasonable attempt to solve on paper without the GDC can receive (M1).*

(c) 9 × 18.35 = 165.15 (M1)

180 –165.15

= \$14.85 (\$14.9) (A1)(ft) (C2)

Note: *If C and V are reversed in (b) and (c) all the marks can be treated as (ft) in (c), however, if the same wrong answer for C appears in both (b) and (c) then (c) can receive at most* (M1)(A0)*. In the former case the answers are \$159.21 and \$20.79 respectively.*

[6]