1. FALSE

**Explanation:** Use the Compound Increase Formula.

Let $P = x$, $A = 2x$ and $n = 3$.

\[
A = P \left( 1 + \frac{r}{100} \right)^n
\]

\[
2x = x \left( 1 + \frac{r}{100} \right)^3
\]

\[
\frac{2x}{x} = \left( 1 + \frac{r}{100} \right)^3
\]

\[
2 = \left( 1 + \frac{r}{100} \right)^3
\]

Therefore …

\[
\sqrt[3]{2} = \left( 1 + \frac{r}{100} \right)
\]

\[
\sqrt[3]{2} - 1 = \frac{r}{100}
\]

\[
100 \left( \sqrt[3]{2} - 1 \right) = r
\]

Now …

\[
r = 25.99
\]

Therefore, the annual growth rate is equal to 25.99%.

2. FALSE

**Explanation:**

\[
A = P \left( 1 - \frac{r}{100} \right)^n
\]

\[
4 800 = P \left( 1 - \frac{10.5}{100} \right)^7
\]

\[
4 800 = P \left( 0.895 \right)^7
\]

Therefore …

\[
4 800 = P \left( 0.46 \right)
\]

\[
\frac{4800}{0.46} = P
\]

\[
10 434.70 = P
\]

Therefore, he paid R10 434.70 for the tractor.

3. FALSE

**Explanation:** The dollar to pound rate will be 13.65 : 9.70 = 1.41 : 1

Think of it this way: I need more rands to buy a pound (£) than to buy a dollar ($), which means the pound is more expensive.

Hence I need more dollars to buy a pound.
4. FALSE

Explanation:

\[ A = P \left(1 + \frac{r}{100}\right)^n \]

- \( A \) is the initial amount invested, plus the interest earned, i.e. it is the final amount of the investment, not just the interest.
- \( P \) is the initial amount invested.
- \( n \) is the number of years the interest is calculated over.
- \( r \) is the interest rate per annum, expressed as a percentage.

5. A

Explanation: $140 \times R\,8,60 = R\,1\,204$

6. A

Explanation: $1\,100 \times R\,9,75 = R\,10\,725$

\[ R\,10\,725 + R\,17,23 = £\,622,46 \]

7. B

Explanation: Use the Compound Decrease Formula with ...

\[ P = 9\,500; \quad r = 11; \quad n = 9 \]

Now ...

\[ A = P \left(1 - \frac{r}{100}\right)^n \]

\[ = 9\,500 \left(1 - \frac{11}{100}\right)^9 \]

\[ = 9\,500 \times (0.89)^9 \]

\[ = 3\,328.39 \]

8. A

Explanation:

\[ A = P \left(1 + \frac{r}{100}\right)^n \]

\[ \therefore A = 46\,000\,000 \left(1 + \frac{1.2}{100}\right)^{10} \]

\[ \therefore A = 46\,000\,000 \left(1.012\right)^{10} \]

\[ \therefore A = 46\,000\,000 \left(1.126 \ldots\right) \]

\[ \therefore A = 51\,827\,821.783 \ldots \]

\[ \therefore A = 52\,000\,000 \]

9. C

Explanation: $P\,1\,000 \div R\,1\,400 = 0.714$

Hence for every rand, I will get $P\,0.714$, that is, the exchange rate $R : P = 1 : 0.714$

The exchange rate cannot be $0.714 : 1$, as this implies I will get more pula for rands, which is not the case as the pula is stronger than the rand.

10. 7 200
    R 7 200
    7 200.00
    R 7 200.00
Explanation: \[ \ln A = P \left(1 + ni\right): \]
\[ P = 4500 \]
\[ n = 8 \]
\[ i = \frac{7.5}{100} = 0.075 \]

Now:
\[ A = 4500 \left(1 + \left(8\right)(0.075)\right) \]
\[ \therefore A = 7200 \]

R 7 200 can be drawn from the account after 8 years.

11. 6 500
R 6 500
6 500.00
R 6 500.00

Explanation: Let \( P = x \), then \( A = \left(x + 2990\right) \).

\[ \ln A = P \left(1 + ni\right): \]
\[ P = x \]
\[ A = x + 2990 \]
\[ n = 10 \]
\[ i = \frac{4.6}{100} = 0.046 \]

Now:
\[ x + 2990 = x \left(1 + \left(10\right)(0.046)\right) \]
\[ \therefore x + 2990 = x \left(1.46\right) \]
\[ \therefore x + 2990 = 1.46x \]
\[ \therefore 0.46x = 2990 \quad \text{[x subtracted from both sides]} \]
\[ \therefore x = 6500 \]

The initial amount invested 10 years ago was R 6 500.

12. 33 223

Explanation: The 23 688 residents increases annually at a rate of 7\%.
This increase must be calculated over 5 years.
Therefore, the following values must be substituted into the Compound Increase Formula:
\[ A = 23 688; \quad r = 7; \quad n = 5 \]

Now ...
\[ A = P \left(1 + \frac{r}{100}\right)^n \]
\[ = 23 688 \left(1 + \frac{7}{100}\right)^5 \]
\[ = 23 688 \times (1.09)^5 \]
\[ = 33 223.65 \]
\[ = 33 223 \, \text{people} \]
13. (1) R 3 488,00
(2) R 145,33

Explanation:

\[ \ln A = P \left( 1 + in \right) \]
\[ P = 3 200 \]
\[ n = 2 \]
\[ r = 4,5 \div 100 = 0,045 \]

(1) \[ A = P \left( 1 + in \right) \]
\[ = 3 200 \left( 1 + 0,045 \right) \]
\[ = 3 200 \times 1,09 \]
\[ = 3 488,00 \]

The total amount of repayments is R 3 488,00.

(2) Monthly instalments = \( A \div \text{number of months} \)
\[ = R 3 488,00 \div 24 \quad [24 \text{ months in 2 years}] \]
\[ = R 145,333... \]
\[ = R 145,33 \]

14. (1) R 4 170,50
(2) R 231,69

Explanation:

(1) \[ A = P \left( 1 + in \right) \]
\[ = 3 800 \left( 1 + 0,065 \right) \quad [18 \text{ months is 1,5 years}] \]
\[ = 3 800 \times 1,0975 \]
\[ = 4 170,50 \]

The total amount of repayments is R 4 170,50.

(2) Monthly instalments = \( A \div \text{number of months} \)
\[ = R 4 170,50 \div 18 \]
\[ = R 231,694... \]
\[ = R 231,69 \]

15. (1) 18
(2) 3
(3) R68 921

Explanation: \( r = 18, n = 3, P = 125 \, 000 \) and \( A \) will be the value of the computer after 3 years.

Therefore ...
\[ A = P \left( 1 - \frac{r}{100} \right)^n \]
\[ = 125 \, 000 \left( 1 - \frac{18}{100} \right)^3 \]
\[ = 125 \, 000 \times (0,82)^3 \]
\[ = 68 \, 921 \]