**Unit 2**

**35**

**Semester 2 2018**

**Mathematics Methods Test 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Total Time:** | *30 minutes* |  | |
| **Weighting:** | *6% of the year.* |  | | |
| *This test comprises of* ***TWO sections****. The* ***first section*** *is* ***calculator free*** *where no calculators of any kind are to be used. The* ***second section*** *is* ***calculator assumed*** *where the CAS calculator may be used. All questions must be answered in both sections.* ***Answers should be in EXACT form or rounded appropriately****. All working should be shown in the space provided. Solutions without working may not be awarded full marks. Please take the marks for each question into account when answering the question.* | | | | |
| **SECTION 1: CALCULATOR FREE** | | | | |
| **Time:** *30 minutes* | | | **Equipment Allowed:** *SCSA Formula sheets* | |
| **Marks for Section 1:** *26 marks* | | |  | |

***Australind Test 4***

**QUESTION 1 (1,2,3,3 = 9 marks)**

Simplify each of the following leaving answers with positive indices:

1. a3b3 x a-2b-7
2. 
3. 
4. 

**QUESTION 2 (2,2 = 4 marks)**

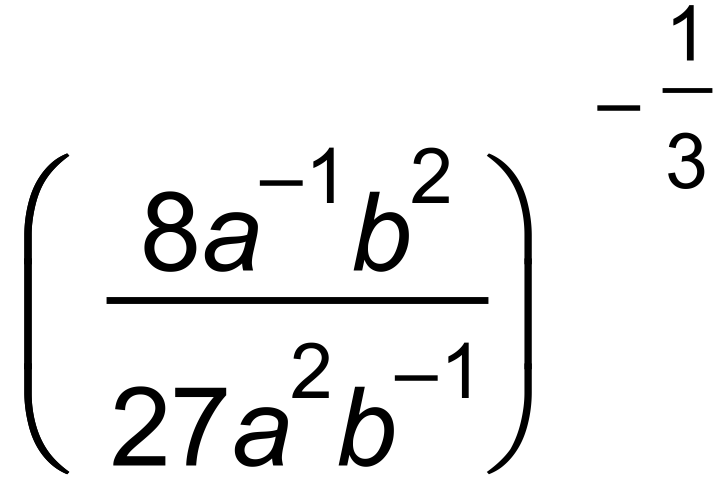
Simplify:

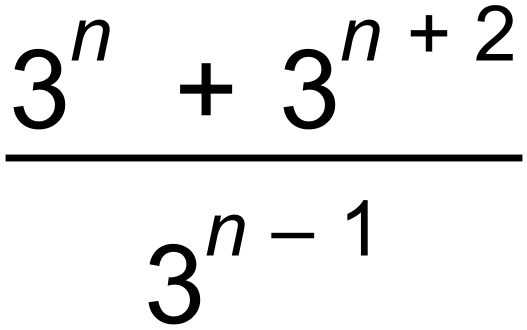
1. 
2. (

Carine SHS Test 4

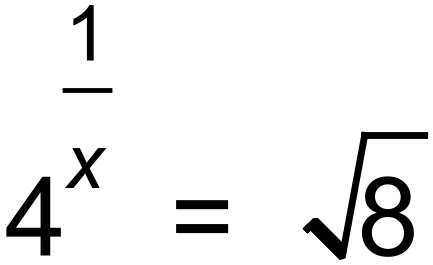
**QUESTION 3 (2, 2, 2 = 6 marks)**

**(a)** Simplify the following, leaving all indices positive.

(i) 

(ii) 

**(b)**  Solve for x.



**QUESTION 4 (2 marks)**

Determine the value of in the following:

Carine SHS Test 5

**QUESTION 5** **[2,2,2 = 6 marks]**

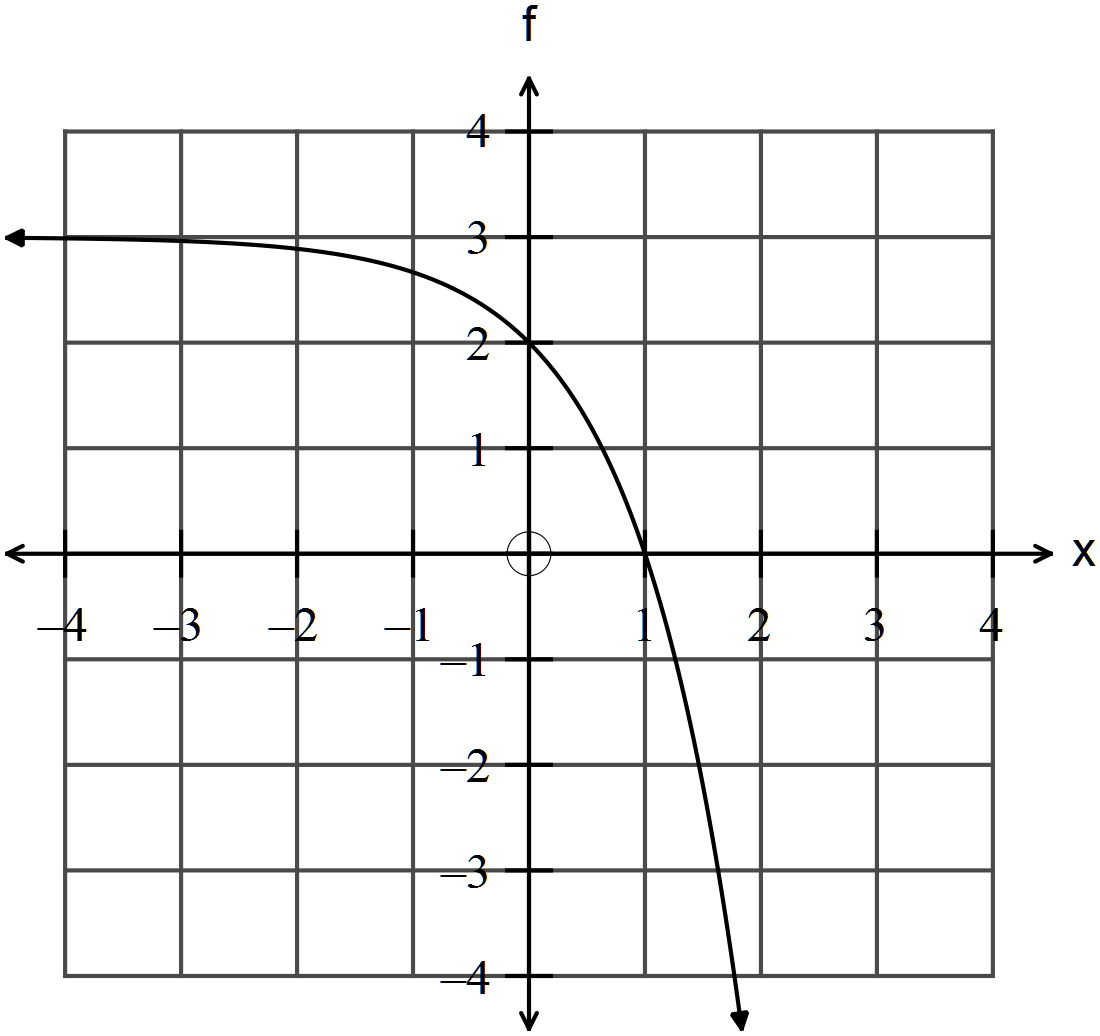
Solve for x in each case showing working clearly.

1. 4x-3 =  b) 

c) 

**QUESTION 5**  **(3, 1 = 4 Marks)**

(a) Determine the equation of the function shown on the set of axes below.



(b) An exponential function is

Give the equations of any asymptotes.

**\*\*\*\*\*\*\*\*\*\*\*\***

**SECTION 2: Calculator Assumed**

**QUESTION 6**  **(1, 1, 2 = 4 marks)**

The number of bacteria in a culture doubles every 5 days.

After days, the number of bacteria is given by

|  |  |
| --- | --- |
| 1. Find the initial number of bacteria. |  |
| 1. Determine the number of bacteria after 3 weeks. |  |