**Exam II**

Ramsey Numbers Final Exam

# Problem 1:

State the asymptotic relationship between the functions and , as in , where may be , , . You must justify your answer by showing your work using the

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
|  | *formula* |
|  | *substitute values* |
|  | *remove smaller order terms* |
|  | *cancel like terms* |
|  | *solve* |

Since , the statement is true.

Since , the statement is true.

Since , the statement is true.

|  |  |
| --- | --- |
|  | *formula* |
|  | *substitute values* |
|  | *cancel like terms* |
|  | *limit rule* |
|  | *limit rule* |
|  | *limit rule* |
|  | *limit rule* |
|  | *solve* |

Since , the statement is true.

Since , the statement is false.

Since , the statement is false.

|  |  |
| --- | --- |
|  | *formula* |
|  | *substitute values* |
|  | *base conversion* |
|  | *log rule* |
|  | *cancel like terms* |
|  | *limit rule* |

Since , the statement is true.

Since , the statement is true.

Since , the statement is true.

|  |  |
| --- | --- |
|  | *formula* |
|  | *substitute values* |
|  | *factor* |
|  | *cancel like terms* |
|  | *exponent rule* |
|  | *exponent rule* |
|  | *subtraction* |
|  | *limit rule* |
|  | *limit rule* |
|  | *limit rule* |

Since , the statement is false.

Since , the statement is true.

Since , the statement is false.

# Problem 2:

Using the master theorem for solving recurrences, state the Big-O value for the following recurrences. If it is inappropriate to use the master method, then state this fact instead.