

FINAL EXAM - STUDY GUIDE

Evaluate ...

$\text{power}(\dots) = \underline{\hspace{15em}}$

$\{\dots\} - \{\dots\} \cap \{\dots\} \cup \{\dots\} = \underline{\hspace{15em}}$

$\{\dots\} \times \{\dots\} = \underline{\hspace{15em}}$

$\log_{\dots}(\dots) \lceil \dots \rceil \lfloor \dots \rfloor = \underline{\hspace{15em}}$

$\text{head}() = \underline{\hspace{15em}}$

$\text{tail}() = \underline{\hspace{15em}}$

$\text{cons}() = \underline{\hspace{15em}}$

Given the following graph...

Find a breadth-first search of the graph that starts at vertex ...

Find a depth-first search...

Find a minimal spanning trees for the following weighted graph...

Show that the function ... is injective and/or surjective...

How many strings over $\{\dots\}$ with length ... such that

How many ways to choose... such that... Permutations and Combinations.

Here is a function for lists... Write down a recursive definition for it...

Here is a binary relation over ...

Find the reflexive closure

Find the symmetric closure

Find the transitive closure

Write out an inductive proof that the following equation is true...

Use known closed forms and summation facts to find a closed form for each of the following expressions. You will need the formulas in the text, page 292, box 5.11. I will not use (d).

Demonstrate the use of Quine's method to find out whether the following wff is a tautology, a contradiction, or a contingency.

Give a formal proof that the following wff is a tautology (CP, IP)

Find a countermodel for the following wff.

$$\forall x \exists x \dots$$

Use equivalences to prove the following wff.

$$\forall x \exists x \dots$$

Let ... mean x is ... and let ... mean Find a wff to describe the following English sentences.

Prove that each of the following wffs is correct.

$$\{ \dots \} \dots \{ \dots \}$$

$$\{ \dots \} \text{ if } \dots \text{ then } \dots \text{ fi } \{ \dots \}$$