

Name:

Class/Set:

Discrete - Packing

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1: Use the indicated algorithm for each

Next Fit

a) 1 10 4 5 7 9 5 10 5 4
(Bin size 15)

Next Fit Decreasing

b) 4 11 8 1 7 5 5 9 11 12 6 6
(Bin size 17)

First Fit

c) 1 6 3 4 1 1 8 2 7
(Bin size 10)

First Fit Decreasing

d) 4 12 6 2 5 12 1 6 5 2 1
(Bin size 13)

First Fit

e) 9 3 7 2 3 1 16 5 12 2
(Bin size 19)

First Fit Decreasing

f) 14 1 17 7 3 13 7 1 3 3 12 19
(Bin size 20)

2: Use the indicated algorithm for each

Next Fit

a) 16 1 3 7 12 9 6 3 2 17 2 12
(Bin size 18)

Next Fit Decreasing

b) 6 3 10 9 4 10 6 3
(Bin size 16)

First Fit

c) 2 10 2 11 7 3 4 12 5
(Bin size 14)

First Fit Decreasing

d) 3 4 4 10 7 2 1 9 3
(Bin size 11)

First Fit

e) 4 5 4 2 9 3 1 2 7 3 9 3
(Bin size 12)

First Fit Decreasing

f) 3 12 1 10 6 7 8 1 6 5 8 8
(Bin size 15)

Mini Excursion #3 Bin Packing Problems

Name: _____

Class Period: _____ Date: _____

Complete the following on your own paper.
For each, CLEARLY draw or label how you will
organize your pipe cuts/shelf stacks.

Problem:

A plumber needs pipes of lengths 7, 7, 6, 3, 3, 4, 2, 2, 1, and 3 feet. They must be cut from pipes that are 10 feet long. How many 10 foot pipes are needed?

- 1.) Find the number of pipes needed and the leftover amount using the **Next-Fit Algorithm**. Show your work.
- 2.) Find the number of pipes needed and the leftover amount using the **First-Fit Algorithm**. Show your work.

Problem: Ten crates of office supplies are to be stored on shelves. The crates weigh 30, 50, 50, 20, 100, 15, 85, 30, 40, and 50 pounds. Each shelf can hold 100 pounds. What is the minimum number of shelves needed to store all the crates?

- 3.) Find the number of shelves needed using the **Next-Fit Algorithm**. Show your work.
- 4.) Find the number of shelves needed using the **First-Fit Algorithm**. Show your work.