

### Announcement

**1. Final will be held on Monday, May 5, 10:10-12:10 at Arena, section **P** (Use Odd Numbered Seats)**

Please bring your **pencil, calculator, and ID** to the final.

**2. It is a policy of the university that no final examination be given prior to the scheduled final examination period.**

May 2, 2008

### Review Question

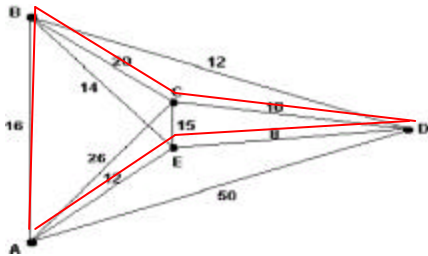
Suppose that after a storm an inspection needs to be made of the sewers along the streets in a small village to make sure local flooding is not due to clogging. The technique most likely to be useful in solving this problem is

- A) Finding a coloring of the vertices of a graph.
- B) Applying the nearest-neighbor algorithm for the traveling salesman problem.
- C) Applying Kruskal's algorithm for finding a minimumcost spanning tree for a graph.
- D) Finding an Euler circuit on a graph.

### Review Question

For the graph below, what is the cost of the Hamiltonian circuit obtained by using the nearest-neighbor algorithm, starting at A?

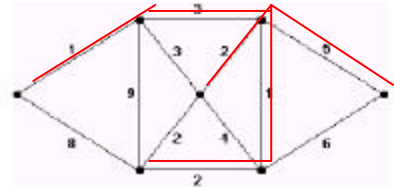
- \_\_\_ A. 60
- \_\_\_ B. 54
- \_\_\_ C. 62
- \_\_\_ D. 66



### Review Question

Use Kruskal's algorithm for minimumcost spanning trees on the graph below. The cost of the tree found is:

- A) 20
- B) 14
- C) 19
- D) 22



### Review Question

Consider a thirteen-person committee which is considering three applicants, A, B, and C, for an opening. The individual rankings are summarized in the table below. Which applicant would be accepted if the committee used the Borda count?

	Number of Members			
First choice	B	C	A	A
Second choice	C	B	B	C
Third choice	A	A	C	B

- A) A
- B) B
- C) C
- D) There is no Borda count winner.

### Review Question

Thirty board members must vote on five candidates: X, Y, Z, U, and V. Their preference rankings are summarized in the table below. Find the winner using the Hare system.

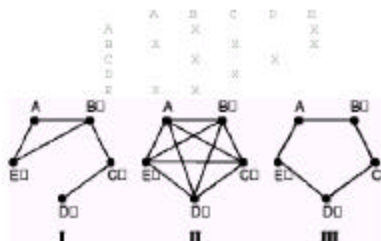
	Number of Members		
	12	10	8
First choice	X	Y	Z
Second choice	U	Z	U
Third choice	Y	X	X
Fourth choice	Z	U	V
Fifth choice	V	V	Y

- A) X
- B) Y
- C) Z
- D) No winner is chosen.

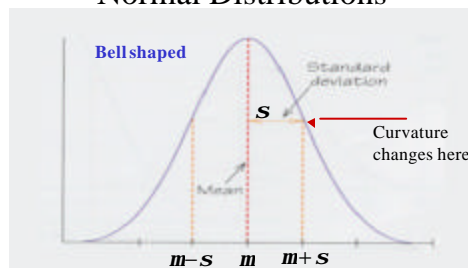
## Review Question

The table below shows chemical compounds which cannot be mixed without causing dangerous reactions. Which graph would be used to facilitate scheduling of disposal containers for the compounds?

- A) I  
B) II  
C) III  
D) None of them



## Normal Distributions



The First quartile:  
 $Q_1 = m - 0.67s$

The third quartile:  
 $Q_3 = m + 0.67s$

## Review Question

The shelf life of a battery produced by one major company is known to be normally distributed, with a mean life of 3.5 years and a standard deviation of 0.75 years. What is the upper quartile of battery shelf life, to two decimal places?

- A) 4.00 years B) 4.25 years C) 4.17 years D) 5.25 years

The third quartile is

$$m + 0.67s$$

$$= 3.5 + 0.67 \times 0.75 = 4.0025$$

## Summary of 68-95-99.7 rule

According to the **68-95-99.7**, in any normal distribution:

- 68% of the observations fall within one standard deviation of the mean.
- 95% of the observations fall within two standard deviations of the mean.
- 99.7% of the observations fall within three standard deviations of the mean.

## Review Question

The annual income of residents in a certain county is normally distributed, with a mean of \$42,000 and a standard deviation of \$10,000. What is the probability that a randomly chosen resident has income over \$52,000?

- A) 16%  
B) 32%  
C) 50%  
D) 68%

- Instructional class meets

**Monday and Friday 8:00-8:50 AM.**

- Recitation sessions meet:

- section 1 Tues 8:00AM, NKRS 156
- section 2 Wed 8:00AM, AG 153
- section 4 Tues 9:00AM, NKRS 156
- section 6 Tues 10:00AM, NKRS 156