1. If a family has 4 children, in how many ways could the parents have 2 boys and 2 girls as children?

   Select the correct answer.

   ○ 6

   ○ 8

   ○ 2

   ○ 10

2. If an island's only residents are penguins and bears, and if there are 22 heads and 52 feet on the island, how many penguins and how many bears are on the island?

   Select the correct answer.

   ○ 20 bears, 2 penguins

   ○ 18 bears, 4 penguins

   ○ 4 bears, 18 penguins

   ○ 2 bears, 20 penguins

3. There are 2 separate, equal-size boxes, and inside each box there are 4 separate small boxes, and inside each of the small boxes there are 4 even smaller boxes. How many boxes are there all together?

   Select the correct answer.

   ○ 42 boxes

   ○ 34 boxes

   ○ 40 boxes

   ○ 44 boxes

4. What is the sum of the numbers in row 6 of Pascal's triangle?

Select the correct answer.

○ 729

○ 37

○ 64

○ 6

5. What is the sum of the numbers in row 5 of Pascal's triangle?

Select the correct answer.

○ 32

○ 5

○ 243

○ 26

6. Alex, Beverly, and Cal live on the same straight road. Alex lives 16 miles from Beverly and Cal lives 3 miles from Beverly. How far does Alex live from Cal?

Select the correct answer.

○ 13 miles

○ 16 miles or 3 miles

○ 29 miles or 22 miles

○ 13 miles or 19 miles

7. Perform both of the given operations. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ (U represents the universal set).

Select the correct answer.

$$\{3, 5, 9\} \cup \{5, 9, 10\}, \quad \{3, 5, 9\} \cap \{5, 9, 10\}$$

○ { 3, 5, 9, 10 }, { 5, 9 }

○ { 3, 10 }, { 5, 9 }

○ { 3, 5, 9, 10 }, { 3, 5, 9, 10 }

○ { 3, 10 }, { 3, 5, 9, 10 }

8. Let $U = \{1, 2, 3, 4, 5, 6, 7\}$, $A = \{1, 2, 3, 5\}$ and $C = \{2, 4, 6\}$. List all the members of each of the following sets.
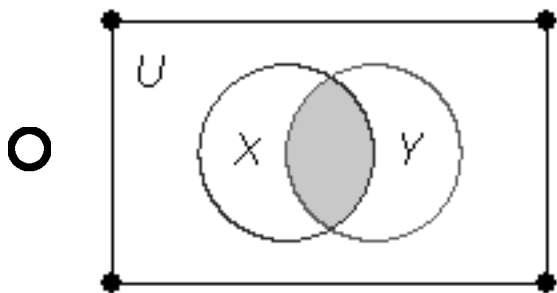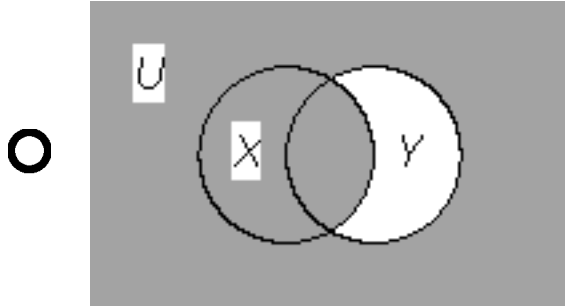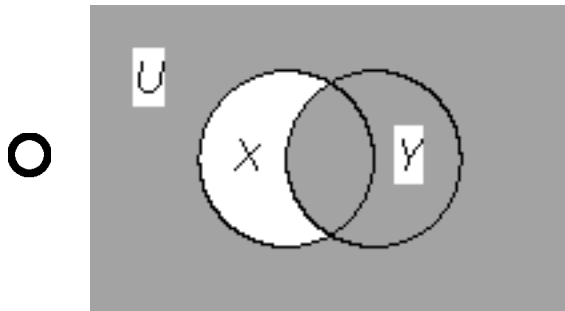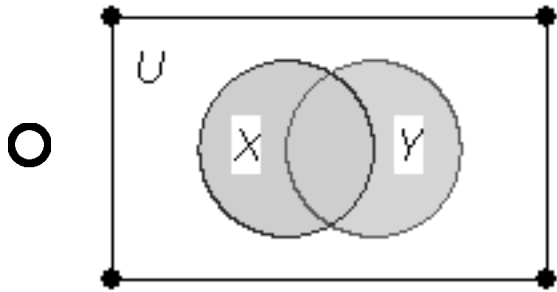
Select the correct answer.

$$A \cup C, \quad A \cap C, \quad \overline{C}$$

○ $A \cup C = \{1, 2, 3, 4, 5, 6\}, A \cap C = \{2\}, \overline{C} = \{1, 3, 5, 7\}$

○ $A \cup C = \{1, 3, 5, 7\}, A \cap C = \{1, 2, 3, 5, 6\}, \overline{C} = \{2, 4, 6\}$

○ $A \cup C = \{2\}, A \cap C = \{1, 2, 3, 4, 5, 6\}, \overline{C} = \{1, 3, 5, 7\}$

○ $A \cup C = \{2, 4, 6\}, A \cap C = \{1, 2, 3, 5\}, \overline{C} = \{1, 3, 4, 6\}$

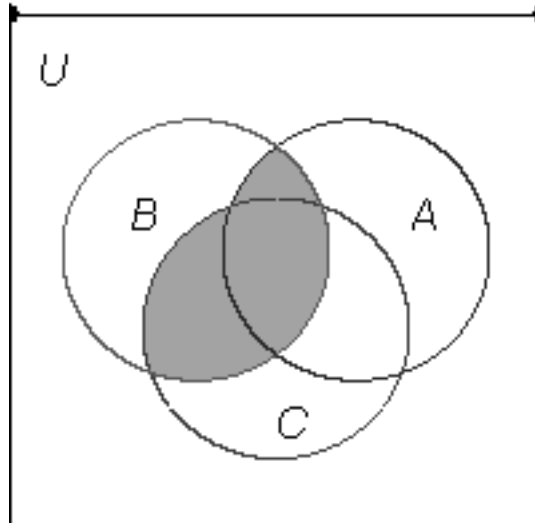**9.** Draw a Venn diagram for this relationship.

Select the correct answer.

$$X \cup Y$$

10. Use set notation to identify the shaded region.

Select the correct answer.

○ $\overline{B} \cup \overline{(A \cap C)}$

○ $\overline{B} \cup (A \cap C)$

○ $B \cap (A \cup C)$

○ $\overline{B} \cap \overline{(A \cup C)}$

○ $B \cup (A \cap C)$

11. Montgomery College has a 28 - piece band and a 29 - piece orchestra. If 14 people are members of both the band and the orchestra, can the band and orchestra travel in two 27 - passenger buses?

Select the correct answer.

○   yes

○   no

12. In a survey of a TriDelta chapter with 46 members, 13 were taking mathematics, 33 were taking English, and 9 were taking both. How many were not taking either of these subjects?

Select the correct answer.

○ 10

○ 7

○ 9

○ 6

13. The fire department wants to send booklets on fire hazards to all teachers and homeowners in town. How many booklets does it need, using these statistics?

Select the correct answer.

46,000 homeowners

4,000 teachers

3,000 teachers who own their own homes

○ 45,000

○ 7,000

○ 47,000

○ 53,000

14. A poll was taken of 132 students at a commuter campus to find out how they got to campus. How many used none of the mentioned means of transportation? The results of the poll were:

Select the correct answer.

42 said they drove alone.

33 rode in a carpool.

38 rode public transportation.

10 used both carpools and public transportation.

13 used both a carpool and sometimes their own cars.

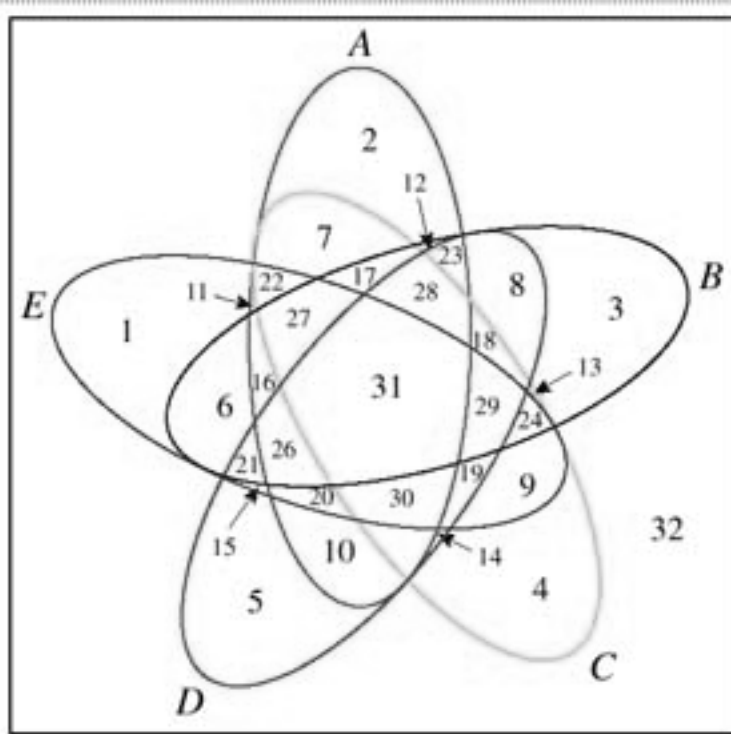5 used buses as well as their own cars.

2 used all three methods.

○ 50

○ 35

○ 45

○ 60

15. Using the Venn diagram in the figure, specify which regions are described by each expression:

Select the correct answer.

$$\overline{B \cup C \cup D \cup E \cup A} \ , \ \overline{B \cap \overline{C \cup D \cup E \cup A}}$$
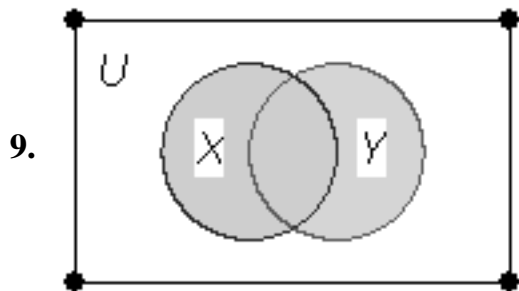

O   Region 26, Region 1

O   Region 31, Region 5

O   Region 32, Region 3

O   Region 29, Region 4

MASC 1024 Test 1, Practice Test

1. 6

2. 4 bears, 18 penguins

3. 42 boxes

4. 64

5. 32

6. 13 miles or 19 miles

7. { 3, 5, 9, 10 }, { 5, 9 }

8. $A \cup C = \{1, 2, 3, 4, 5, 6\}$, $A \cap C = \{2\}$, $\overline{C} = \{1, 3, 5, 7\}$

9.

10. $B \cap (A \cup C)$

11. yes

12. 9

13. 47,000

14. 45

15. Region 32, Region 3