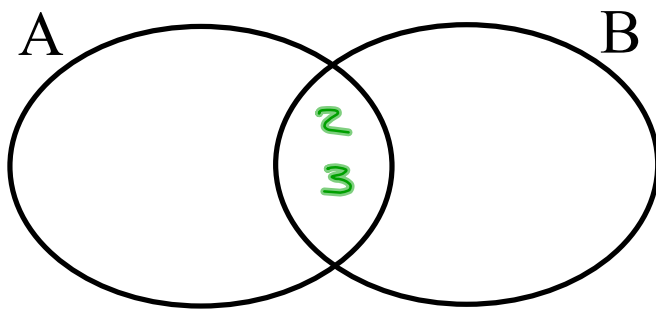


3.8 Unions and Intersections of Sets

~~Sunshine State Standards: MA.912.D.7.1 & MA.912.D.7.2~~

~~Objective: The student will find the unions and intersections of sets~~

Review



Question: $A \cup B$

Question: $A \cap B$

3.8 - UNIONS AND INTERSECTIONS OF SETS:

Union uses \cup . Union adds all of the elements in two sets together. Items only appear once in the combined:

$$A = \{\text{orange, blue, red}\}$$

$$B = \{\text{blue, black}\}$$

$$A \cup B = \{\text{orange, blue, red, black}\}$$

Practice:

(1) What is the union?

$$(A) = \{1, 2, 3, 4, 5\} \quad (B) = \{2, 4, 6\}$$

$$\{1, 2, 3, 4, 5, 6\}$$

(2) $C \cup D$

$$(C) = \{a, b, c, d\} \quad (D) = \{a, x, y, z\}$$

$$(a, b, c, d, x, y, z)$$

Intersection uses \cap . You identify the elements that are common to both sets:

$$A = \{\text{orange, blue, red}\}$$

$$B = \{\text{blue, black}\}$$

$$A \cap B = \{\text{blue}\}$$

Practice:

(1) What is the intersection?

$$(A) = \{1, 2, 3, 4, 5, 6\} \quad (B) = \{2, 4, 6\}$$

$$\{2, 4, 6\}$$

(2) $C \cap D$

$$(C) = \{a, b, c, d\} \quad (D) = \{c\}$$

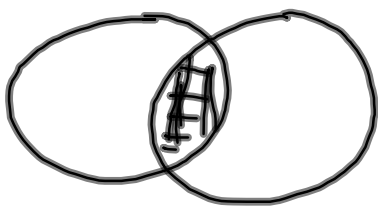
$$\{c\}$$

Disjoint sets have no elements in common

$A = \{\text{orange, blue, red}\}$ $B = \{\text{yellow, black}\}$

~~Review Venn diagrams, p. 232 - 233.~~

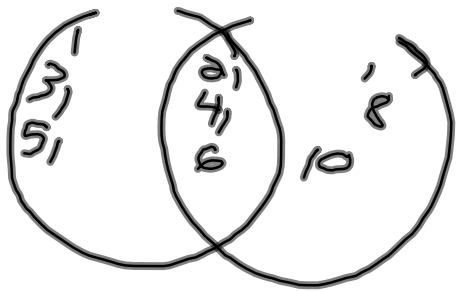
What is a Venn Diagram



Venn Diagram

Draw a two circle Venn Diagram to represent the two given sets.

$$(A) = \{1, 2, 3, 4, 5, 6\} \quad (B) = \{2, 4, 6, 8, 10\}$$

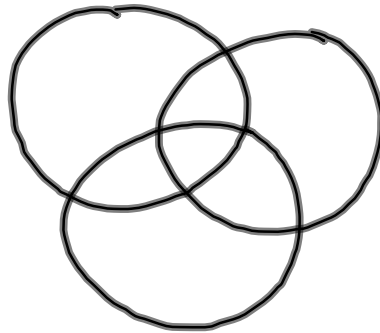


Draw a three circle Venn Diagram to represent the three given sets.

$$A = \{1, 2, 3, 4, 5, 7, 10, 12\}$$

$$B = \{0, 2, 4, 6, 8, 10\}$$

$$C = \{1, 6, 10\}$$



Making a Venn Diagram

Three friends go shopping.

Anna buys: T-shirt, shoes, glasses, pants, bag, hat, gloves

Ailish buys: hat, lip stick, glasses, shocks

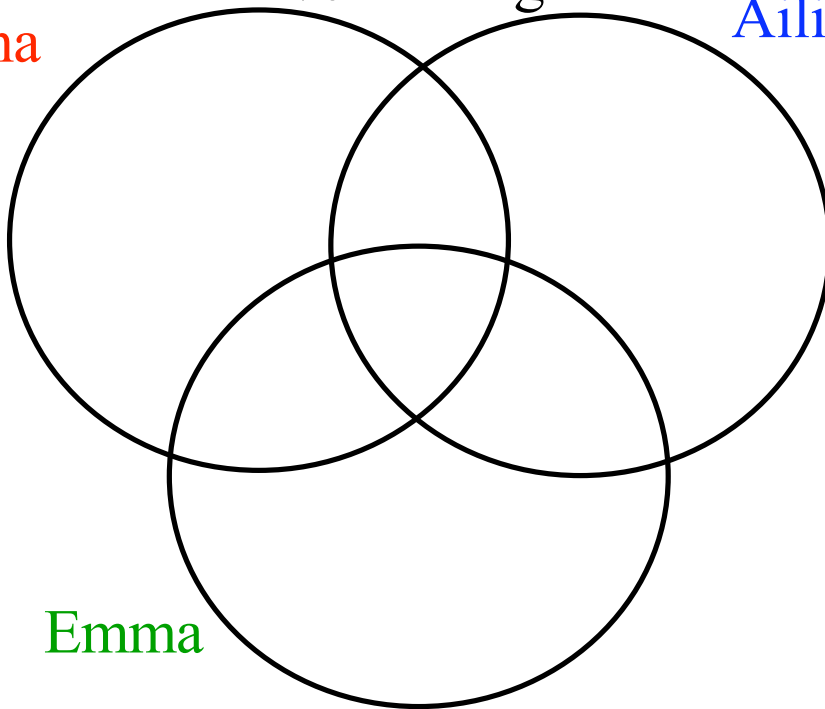
Emma buys: gloves, lip stick, tie, glasses, ear rings, bag

Venn Diagram

Anna

Ailish

Emma



Gloves

Pants

T-shirt

Socks

Bag

Shoes

Hat

Earrings

Glasses

Lip stick

Tie

Practice: Find each union or intersection.

$$A = \{1, 3, 4\} \quad B = \{0, 2, 4, 6, 8\}$$

$$C = \{2, 5, 7, 10\} \quad D = \{1, 3, 5, 7, 9\}$$

(1) $B \cup C$

(2) $B \cup D$

(3) $C \cup D$

(4) $A \cap B$

(5) $A \cap C$

(6) $A \cap D$

(7) $B \cap C$

(8) $B \cap D$

(9) $C \cap D$

