

MATHSPPOINTS.IE
JUNIOR & LEAVING CERT

SETS

JUNIOR CERT HIGHER LEVEL

100 students were surveyed about which internet sites they visited regularly:

- 41 used Twitter
- 74 used Facebook
- 74 used YouTube
- x used Facebook and YouTube
- 26 used Facebook and Twitter
- 27 used Twitter and YouTube
- 6 used none of these sites
- 14 used all three sites regularly

Represent the above information on the Venn diagram.

Calculate the value of x .

$$41 + 62 - x + x - 14 + 61 - x + 6 = 100$$

$$156 - x = 100$$

$$156 - 100 = x$$

$$x = 56$$

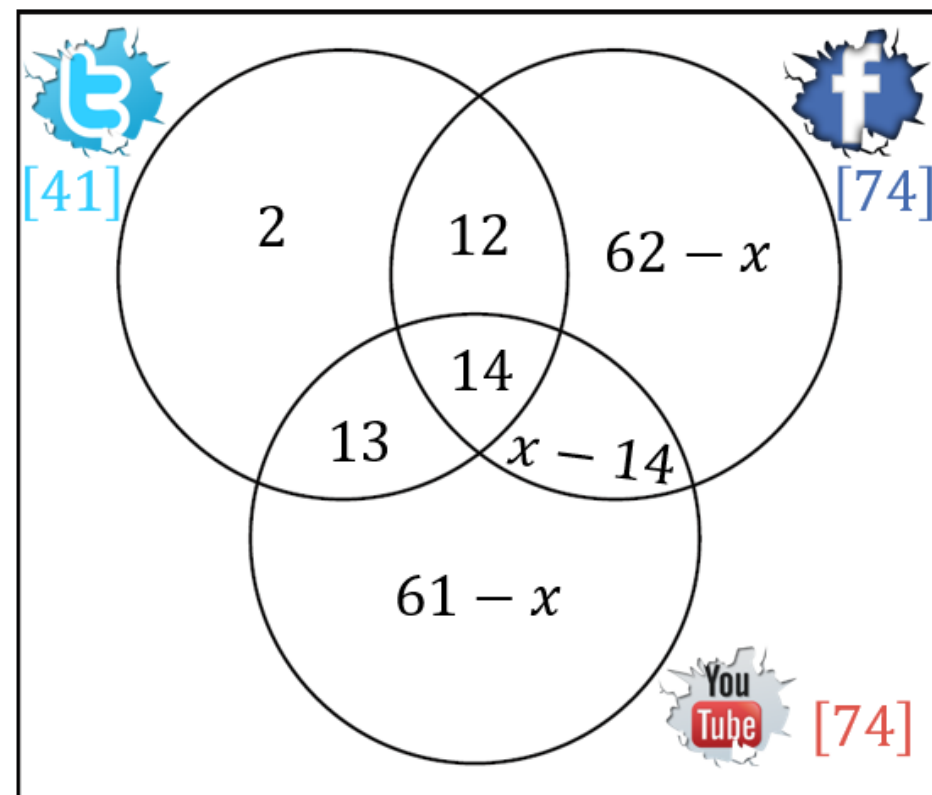
If a student is chosen at random, what is the probability that they used Twitter only?

$$\frac{2}{100} = \frac{1}{50}$$

If a student is chosen at random, what is the probability that they used Facebook or YouTube?

$$\frac{100 - (2 + 6)}{100} = \frac{92}{100} = \frac{23}{25}$$

[100]



Union and intersection are **associative**.

$$(A \cup B) \cup C = A \cup (B \cup C)$$

$$(A \cap B) \cap C = A \cap (B \cap C)$$

Union and intersection are **distributive** over intersection and union respectively

$$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$$

$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

Commutative Law

$$A \cup B = B \cup A$$

$$A \cap B = B \cap A$$