

# Quiz 2 Review - on Notebook Paper

Are You Ready For Your Last Quiz In Honors Math II??

Some things to Know, Memorize, AND Understand how to use are...

## What are the formulas?

$${}_n P_r = \underline{\hspace{2cm}}$$

$${}_n C_r = \underline{\hspace{2cm}}$$

Factorial:

For any integer  $n > 0$ ,

$$n! = \underline{n(n-1)(n-2)(n-3)\dots(3)(2)(1)}$$

If  $n=0$ ,  $0! = \underline{\hspace{1cm}}$

Ex:  $4! = \underline{\hspace{1cm}}$

## Fill in the notation ↓

Intersection of two sets (A \_\_\_ B):

If A and B are **Independent** events, then

$$P(A \text{ and } B) = P(A \text{ ___ } B) = \underline{\hspace{2cm}}$$

## Fill in the vocab. ↑

Union of two sets (A \_\_\_ B):

If A and B are **Dependent** events, then

$$P(A, \text{ then } B) = \underline{\hspace{2cm}}$$

Complement of a set:

If A and B are **Mutually Inclusive or Exclusive** Events

$$P(A \text{ or } B) = P(A \text{ ___ } B) = \underline{\hspace{2cm}}$$

$$P(\text{not } A) = P(\underline{\hspace{1cm}}) = \underline{\hspace{2cm}}$$

If A and B are **Conditional** Events

$$P(A \text{ given } B) = P(A \text{ ___ } B) = \underline{\hspace{2cm}}$$

# Quiz 2 Review **KEY**

Are You Ready For Your Last Quiz In Honors Math II??

Some things to Know, Memorize, AND Understand how to use are...

$${}_n P_r = \frac{n!}{(n-r)!} \quad {}_n C_r = \frac{n!}{(n-r)! \bullet r!}$$

Factorial:

For any integer  $n > 0$ ,

$$n! = \frac{n(n-1)(n-2)(n-3)\dots(3)(2)(1)}{1}$$

If  $n=0$ ,  $0! = 1$

$$\text{Ex: } 4! = 4 \cdot 3 \cdot 2 \cdot 1$$

**Intersection** of two sets ( $A \cap B$ ):

**All the elements that appear in both sets**

(the "overlap" of the two sets)

If A and B are **Independent** events, then

$$P(A \text{ and } B) = P(A \cap B) = \underline{P(A) \cdot P(B)}$$

If A and B are **Dependent** events, then

$$P(A, \text{ then } B) = \underline{P(A) \cdot P(B \text{ after } A)}$$

**\*\*assume success on 1<sup>st</sup> draw\*\***

**Union** of two sets ( $A \cup B$ ):

**Everything in either set**

(the items in A or B alone or both)

If A and B are **Mutually Inclusive or Exclusive** Events

$$P(A \text{ or } B) = P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

**Compliment** of a set:

all elements in the universal set

that are **NOT** in the initial set

$$P(\text{not } A) = P(A^c) = 1 - P(A)$$

If A and B are **Conditional** Events

$$P(A \text{ given } B) = P(A|B) = \frac{P(A \text{ and } B)}{P(B)}$$

# Whiteboard Review

You will need:

- Whiteboard
- Marker
- Eraser
- Your brain!



A committee is to be formed consisting of 1 freshman, 1 sophomore, 2 juniors, and 2 seniors.

How many ways can this committee be formed from 5 freshmen, 5 sophomores, 8 juniors, and 10 seniors?

$${}_5C_1 \cdot {}_5C_1 \cdot {}_8C_2 \cdot {}_{10}C_2 = 31,500$$

A local telephone number consists of 7 digits, and the first number cannot begin with 0 or 1. How many different local telephone numbers are possible?

$$8 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 = 8,000,000$$

How many distinguishable ways can the letters in CASTRO be written?

$$6! = 720$$

How many distinguishable ways  
can the letters in MISSISSIPPI be  
written?

$$\frac{11!}{(4!4!2!)} = 34,650$$

How many different 7 card hands  
are possible from a standard 52  
card deck?

$${}_{52}C_7 = 133,784,560$$



2 coins are tossed. What is the probability of getting at least one tail?

HH

HT

TH

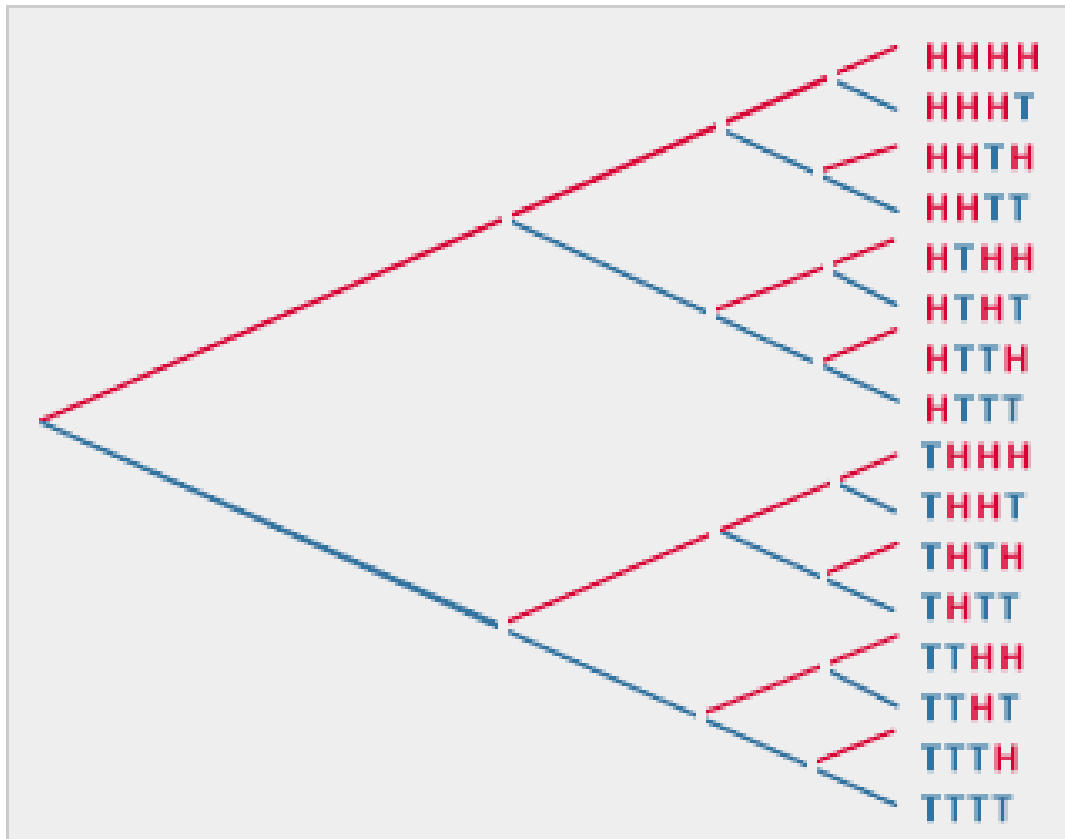
TT

$\frac{3}{4}$

Write as a fraction.

Write as a fraction.

4 coins are tossed. What is the probability of getting at least 3 tails?



5/16

From a standard deck of 52 cards,  
find the probability of getting a  
club, or a face card.

$$\frac{13}{52} + \frac{12}{52} - \frac{3}{52} = \frac{22}{52} = \frac{11}{26}$$

Write as a fraction.

John moves to Thailand, and only speaks English. On his first day of school he is given a 10 question multiple choice quiz in Thai, each with 4 options. What is the probability that John will guess all 10 questions correctly?

$$(1/4)^{10} = 9.5 \times 10^{-7}$$

A bag contains 3 blue, 4 purple, and 5 red marbles. 3 marbles are drawn. Find the probability of drawing:

a) 2 red and a blue

b) a blue, given you drew 2 reds

a)  $\frac{3}{22}$  Possibilities: red, red, blue ( $\frac{1}{22}$ )  
blue, red, red ( $\frac{1}{22}$ )  
red, blue, red ( $\frac{1}{22}$ )

b)  $\frac{3}{10}$

Write as a fraction.

A dice is rolled. Find the probability of rolling a number that is less than 5, or even.

$$\frac{4}{6} + \frac{3}{6} - \frac{2}{6} = \frac{5}{6}$$

Write as a fraction.

A store sells T-shirts in 5 colors, 9 designs, and 3 sizes. How many different T-shirts are available?

$$5 \times 9 \times 3 = 135$$

The odds of an event occurring are 15 to 7.  
What is the probability of the event occurring?

$15/22$

Write as a fraction.



A high school basketball team leads at halftime in 45% of the games in a season. The team wins 75% of the time when they have a halftime lead, but wins only 9% of the time when they do not have a halftime lead. Write as a percent. Round to the nearest tenth.

a) What is the probability that the team wins a particular game during the season? 38.7%

b) P(lose) 61.3%

c) P(Does not lead | win) 12.8%

d) P(Leads | lose) 18.4%

e) Does not lead and wins 4.95%

Of 100 students, 23 are taking Calculus, 29 are taking French, and 12 are taking both Calculus and French. If a student is picked at random, what is the probability that the student is taking Calculus or French?

$$40/100 = 2/5$$

In a student body election, there are three candidates for president, four candidates for vice president, and five candidates for secretary. How many possible groups of officers are there?

$$3 \times 4 \times 5 = 60$$

*OR*

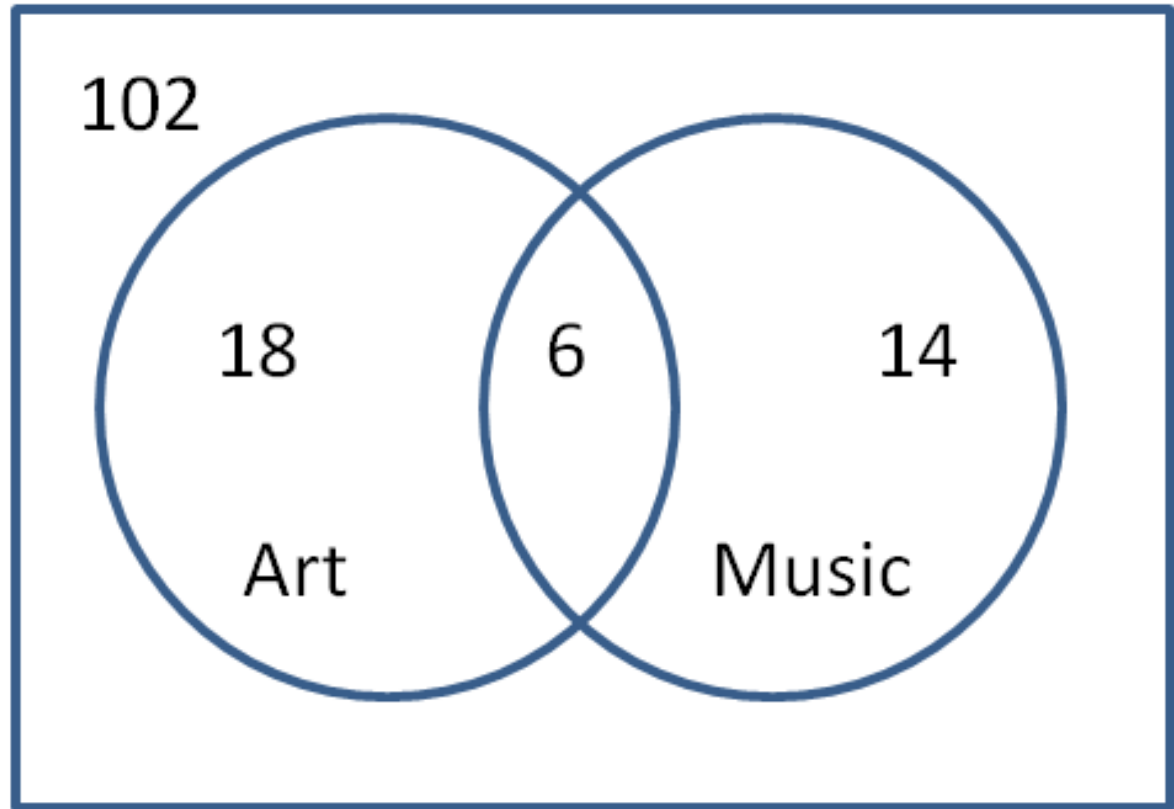
$${}_3C_1 \cdot {}_4C_1 \cdot {}_5C_1 = 60$$

# Extra Practice

(if not completed)

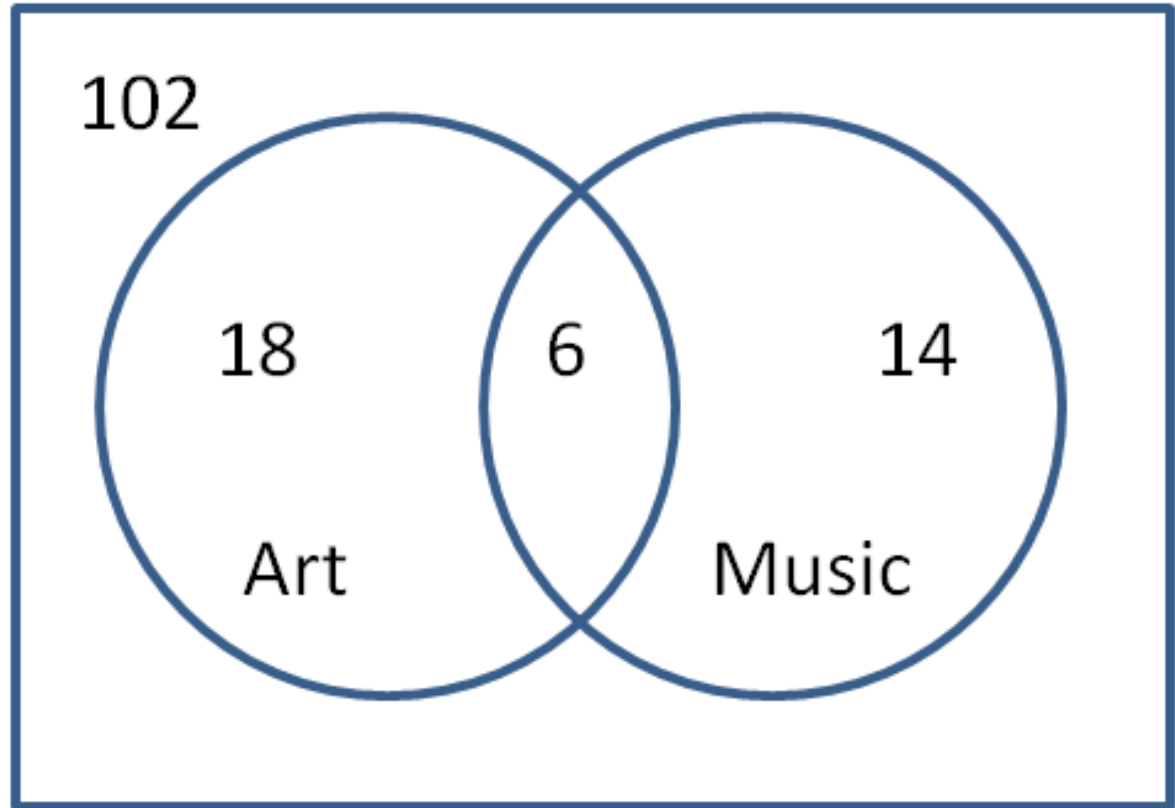


Given the following Venn Diagram, how many students are taking an art AND a music class?



6

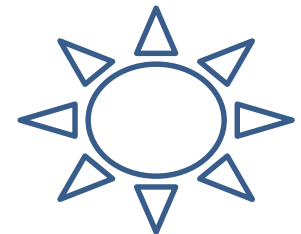
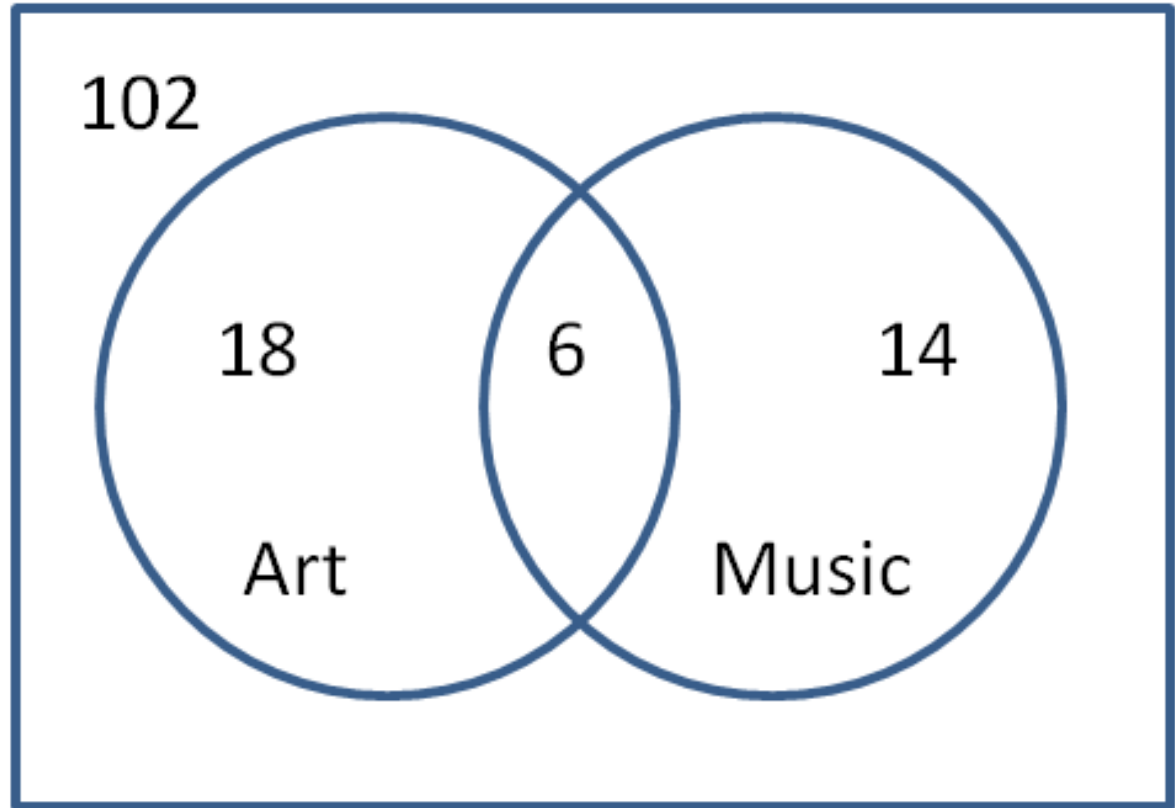
Given the following Venn Diagram, how many students are taking an art OR a music class?



38



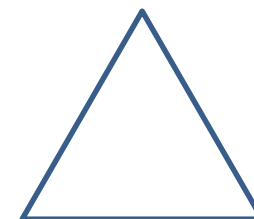
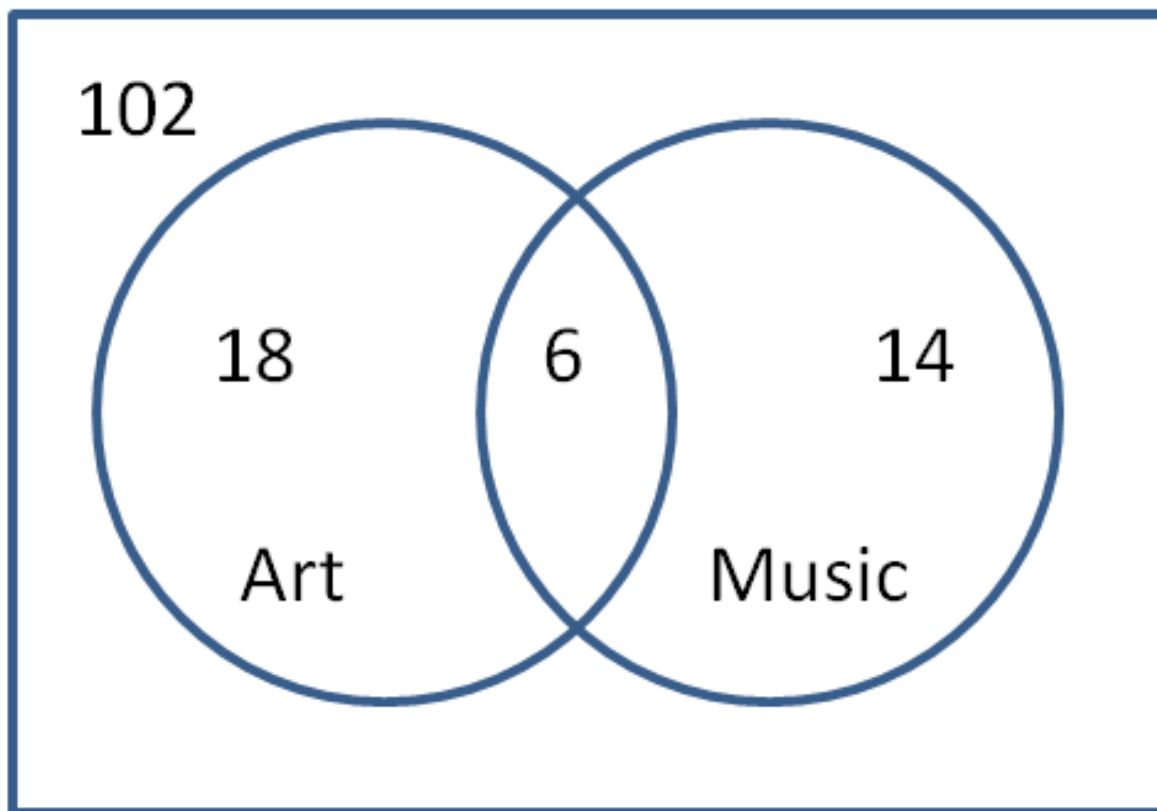
Given the following Venn Diagram, how many students are in the Venn Diagram?



140

Given the following Venn Diagram, find the PROBABILITY that a student is taking an art AND a music class.

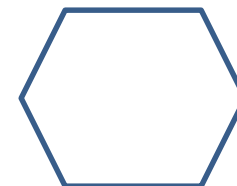
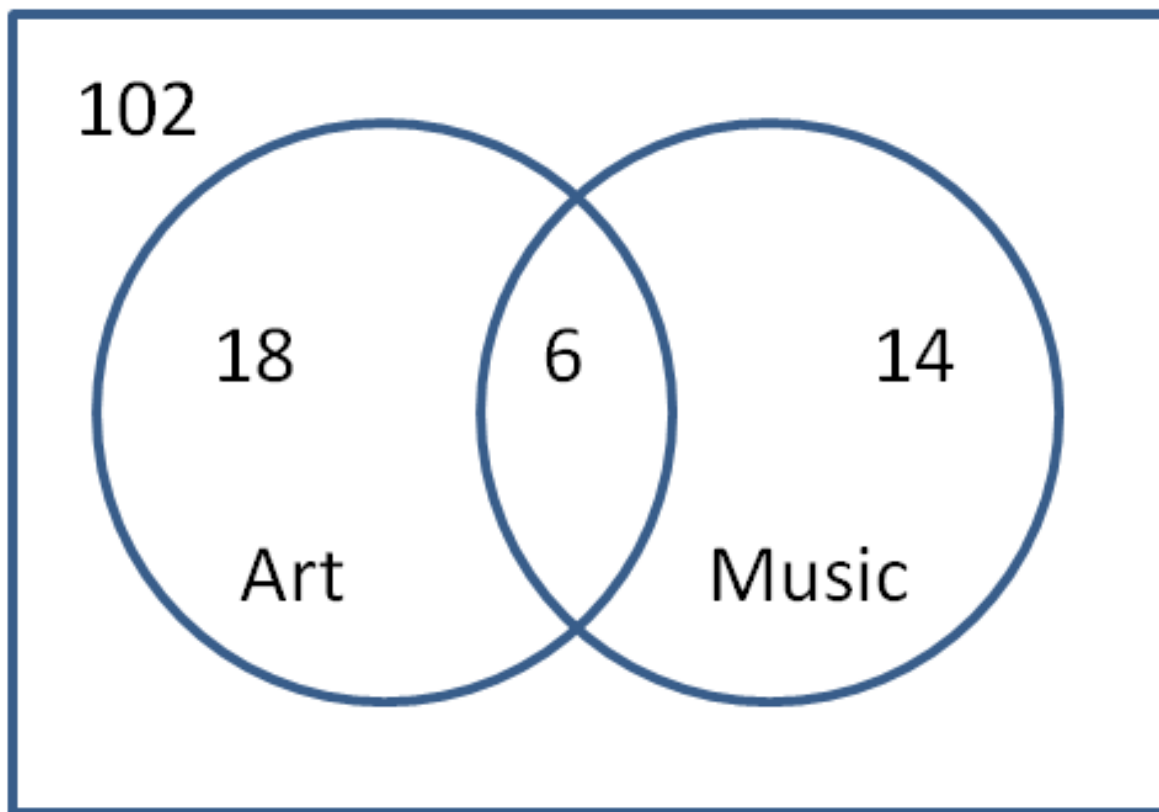
$$P(\text{art AND music}) = \underline{\hspace{2cm}}$$



$\frac{6}{140}$  or  $\frac{3}{70}$

Given the following Venn Diagram, find the PROBABILITY that a student is taking an art OR a music class.

$$P(\text{art OR music}) = \underline{\hspace{2cm}}$$



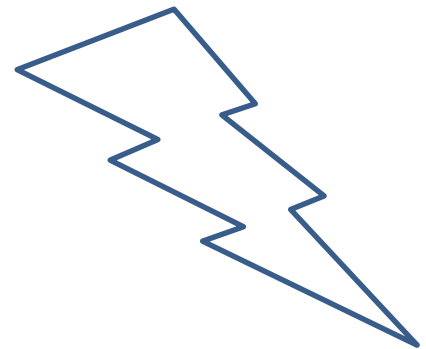
$$38 / 140$$

or

$$19 / 70$$

The probability of an event + the probability of its complement = \_\_\_\_\_

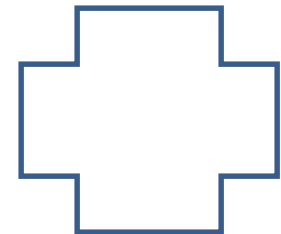
$$P(A) + P(A^C) = \underline{\hspace{2cm}}$$



1



The probability of rain tomorrow is 40%. What is the probability that it doesn't rain?



0.60

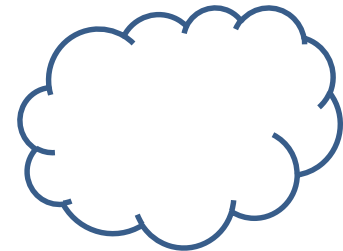
The probability of rain tomorrow is 40%. What are the odds of rain?



4:6 or 2:3

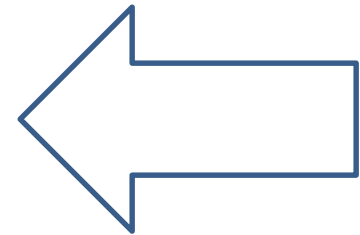
At SWGHS, 30% of the students are sophomores.  
48% of the students are female.

What is the probability that a student is a female  
AND a sophomore?



14.4%

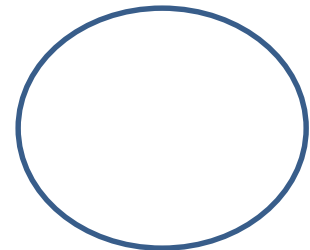
A coin and a die are tossed/rolled. What is the probability of getting tails and a 4.



1/12

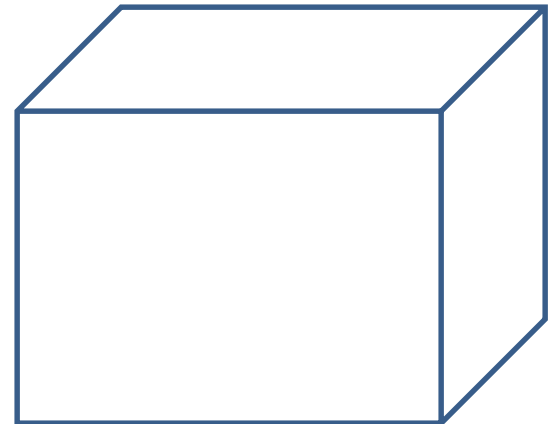


If the probability of receiving a piece of mail is 25% on any given day, what is the probability of receiving a piece of mail today and no mail tomorrow?



18.75%

Given a standard deck of cards, what is the probability of drawing a diamond?



25%

Given a standard deck of cards, what is the probability of drawing a king?



1/13

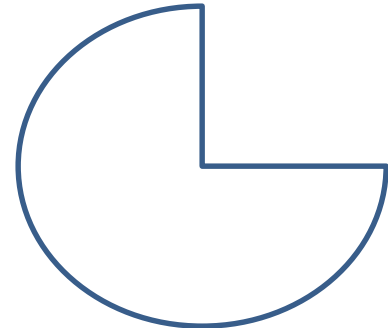
Given a standard deck of cards, what is the probability of drawing the king of diamonds?



1/52



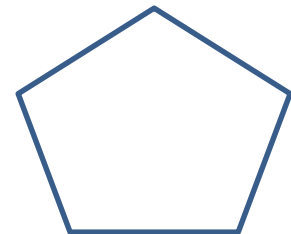
Given a standard deck of cards, what is the probability of drawing a king OR a diamond?



16/52 or

4/13

Given a standard deck of cards, what are the  
ODDS of drawing a diamond?



13:39

or

1:3

# Tonight's Homework

Packet p. 12 and 13

Omit problem #1 & 2 for now

Study for Quiz Tomorrow!

