

1-1 Patterns and Inductive Reasoning

1.) $17, 23, 29, 35, 41, \dots, 47$
 $+6 \quad +6 \quad +6 \quad +6 \quad +6$

3.) $12, 14, 18, 24, 32, \dots, 42$
 $+2 \quad +4 \quad +6 \quad +8 \quad +10$

Adding consecutive even numbers

The difference increases by 2 every term.

$4, 12, 36, 108, 324, \dots, 972$
 $\times 3 \quad \times 3 \quad \times 3 \quad \times 3$

$0, 1, 4, 9, 16, 25, \dots, 36$
 $1 \quad 3 \quad 5 \quad 7 \quad 9 \quad 11$

- Perfect Squares

- Adding consecutive odd numbers

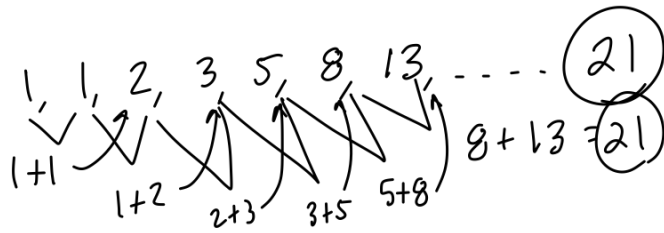
$1, 2, 4, 7, 11, 16, \dots, 22$
 $1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6$

Adding consecutive counting numbers

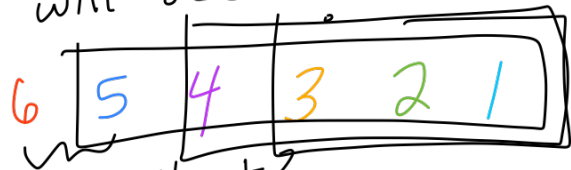
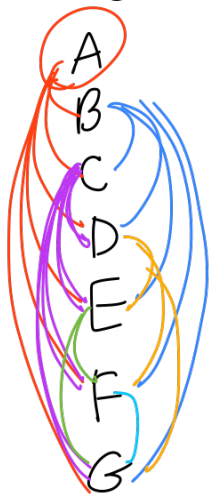
$1, 5, 10, 25, 50, 100, 500, \dots, 1000$ \$

UA OA UEA EEA, ...

Fibonacci's Sequence



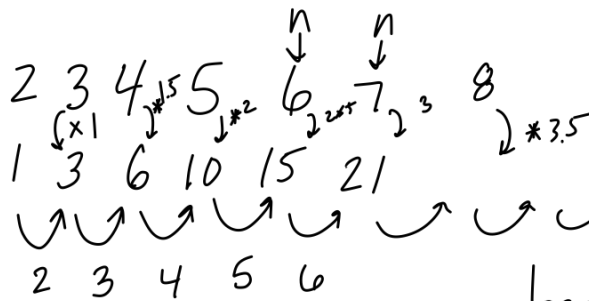
7 people meet and shake hands
 How many handshakes will occur?



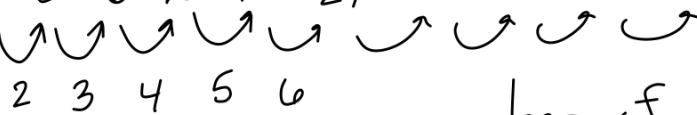
$11 + 4 + 3$

$15 \quad 18 + 2$

$20 + 1 = 21$



1 3 6 10 15 21

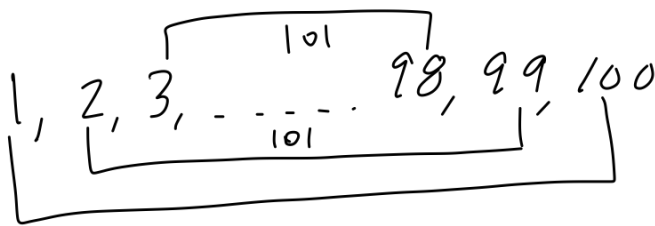


number of handshakes for "n" people

$(n-1)(n)$

$n = 100$

$(100-1)(100) = 9900$

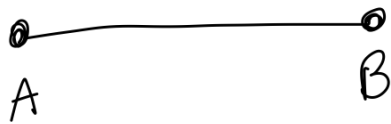


101

$50(101) = 5050$

1-2 Points, Lines, and Planes

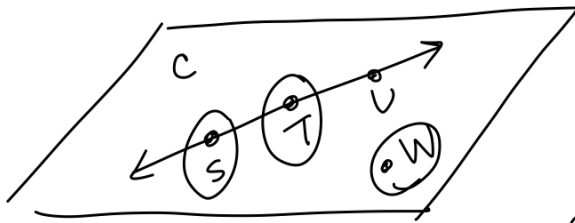
• Point (No dimension)



Line

Two points

1 - dimension

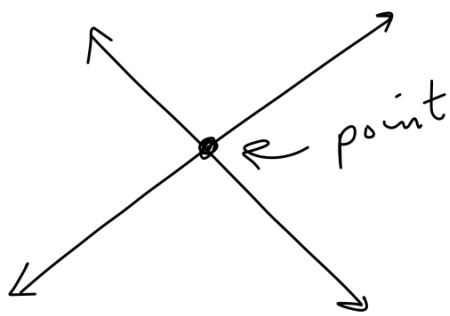


Plane

2 - dimensions

Plane

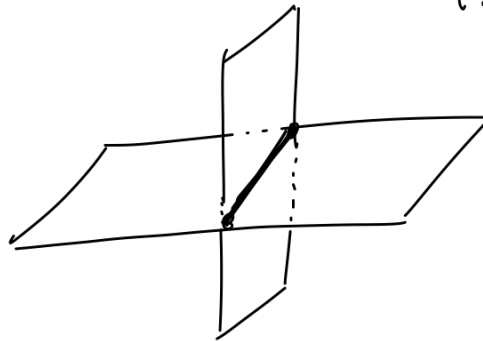
Line and 1 noncollinear pt.
3 noncollinear points



Two lines intersect at a point

line \rightarrow 1 dimension

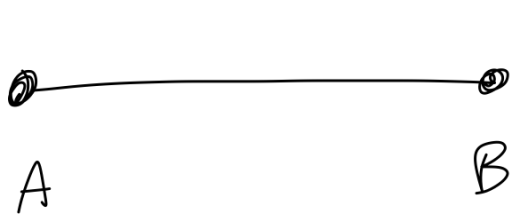
intersection \rightarrow pt \rightarrow 0-D



Two planes intersect at line

Plane - 2D

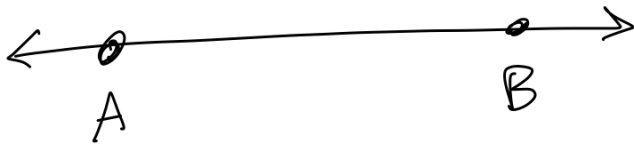
Line \rightarrow 1D



Segment AB

\overline{AB} , \overline{BA}

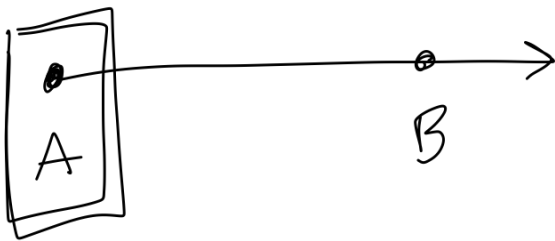
no arrows



Line AB

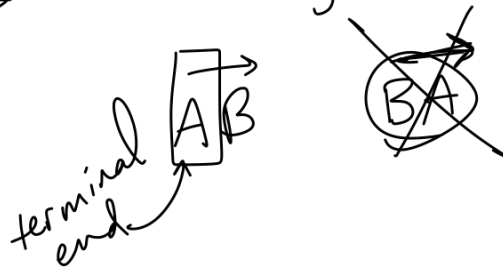
2 arrows

\overleftrightarrow{AB} \overleftrightarrow{BA}



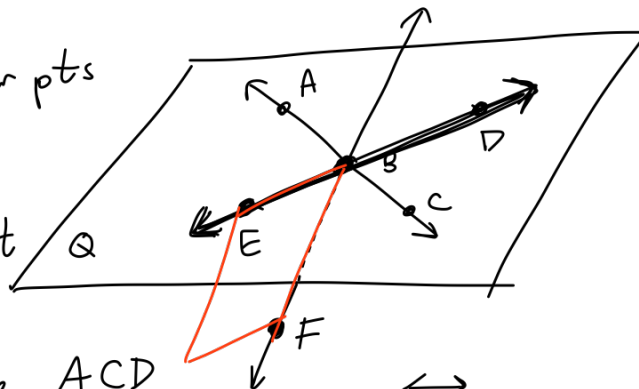
Ray AB

1 arrow



Plane Q

Plane \rightarrow 3 noncollinear pts
 1 line
 +
 1 noncollinear pt



\overleftrightarrow{AC} D

Plane ACD

\overleftrightarrow{AB} D

Plane ABD

\overleftrightarrow{DE} A

Plane ADE

\overleftrightarrow{ED} \overleftrightarrow{EB} \overleftrightarrow{BD}
 \overleftrightarrow{DE} \overleftrightarrow{BE} \overleftrightarrow{DB}

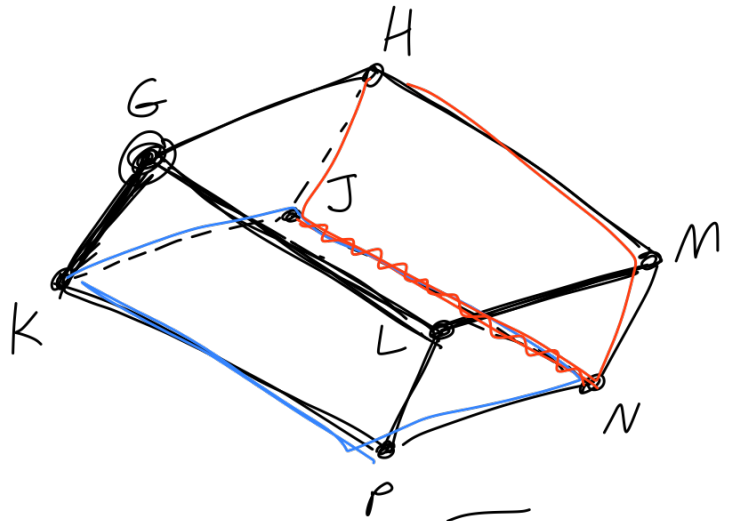
E, B, D

collinear

Pt collinear with A $\frac{1}{3}$ C \rightarrow (B)

Plane GKPL
 Plane GKP

Intersection
 of \overline{KG} and \overline{GL}
 at \textcircled{G}

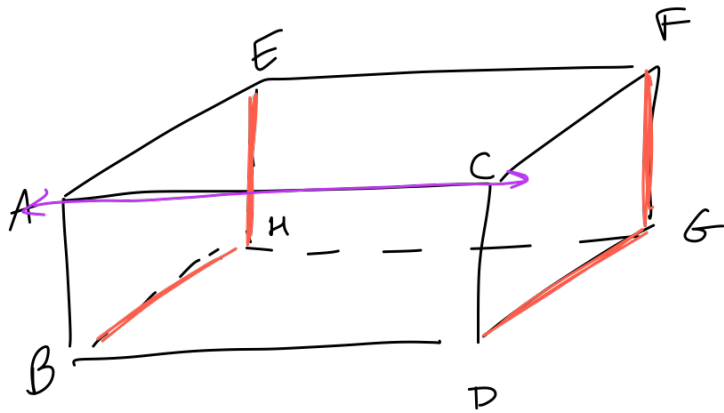


Intersection
 of \overline{GHML} and \overline{LM} \rightarrow \overline{LM}

Intersection
 \overline{KJNP} and \overline{HJMN} \rightarrow \overline{JN}

skew lines

\overline{EH} , \overline{BH} , \overline{FG} , \overline{DG}
 never touch —
 but are not on
 the same plane.



Parallel to \overline{AC}
 \overline{EF} , \overline{BD} , \overline{HG}

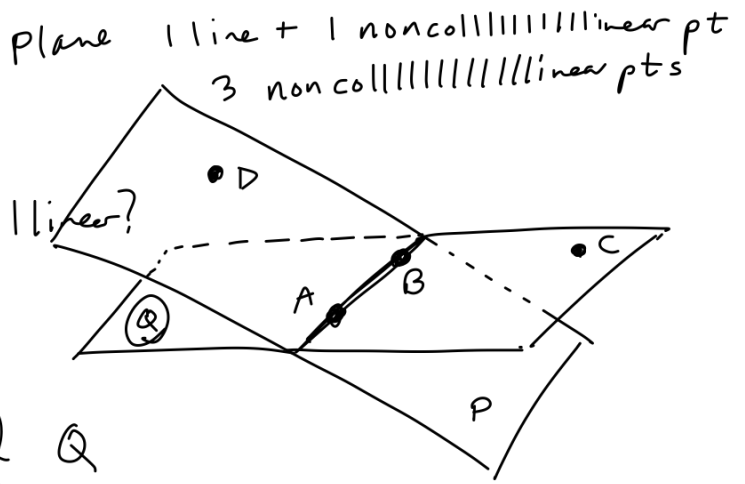
Perpendicular to \overline{AC}
 \overline{AB} , \overline{CD} , \overline{AE} , \overline{CF}

Parallel lines \rightarrow never touch
 and exist on same plane.
 Perpendiculars \rightarrow intersect
 at 90° angle

- Name Plane Q
ABC

- Are A and C collinear?
 yes

- What is the intersection
 of Plane P and Q
 \overline{AB}

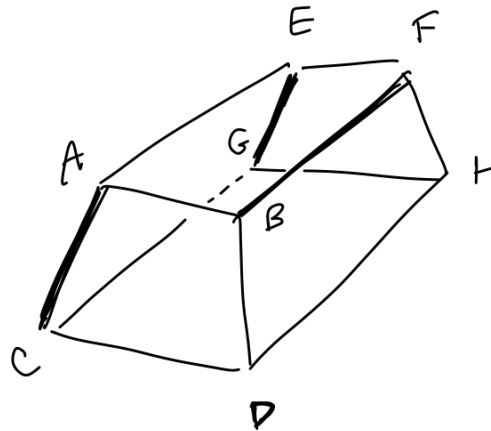


- Name Plane P
ABD or DBA

1-3 Segments, Rays, Parallel Lines, and Planes

Lines parallel to \overline{BF}
 \overline{AE} , \overline{CG} , \overline{DH}

Lines Intersecting \overline{AC}
 \overline{CG} , \overline{AB} , \overline{AE} , \overline{CD}



Lines skew to \overline{EG}
 \overline{AB} , \overline{CD} , \overline{BF} , \overline{DH} , \overline{BD}

Intersection of EFHG and CDHG
HG

intersection of
 planes ABCD and
 BDHF and
 ABFE

point B

HW 1-1 evens
 1-2 evens
 1-3 computer

