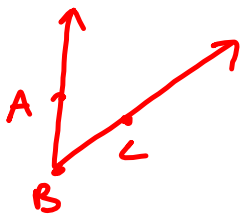
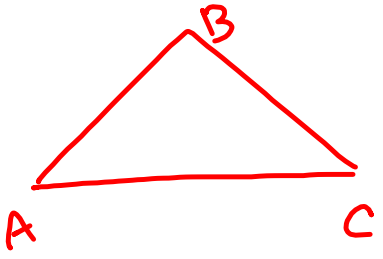
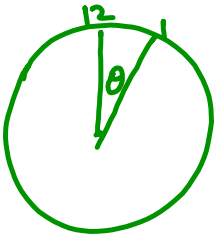




$\angle A$

$m\angle ABC = m\angle CBA$



$\theta = \frac{360^\circ}{12} = 30^\circ$

Math4020 Geometry Vocabulary

Point--> Is 0-dimensional.

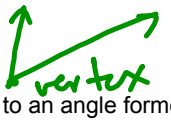
Line--> Extends forever in two directions; has no thickness; the shortest path between two points is along a line.

Ray--> Part of a line; extends forever in only one direction and has one endpoint.

Line segment--> Shortest path between two points (straight); part of a line; has two endpoints; the intersection of two rays.

Collinear Points--> Two or more points that lie on the same line.

Angle--> Union of two rays with common endpoint called a vertex.

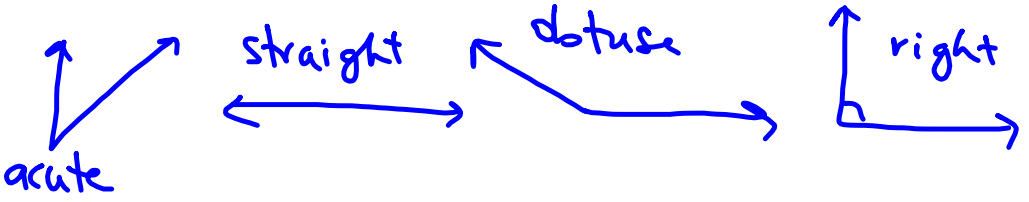


Right Angle--> A 90-degree angle; an angle that is equal in measure to an angle formed by perfectly horizontal and vert

Straight Angle--> An angle that forms a line; 180 degrees.

Acute Angle--> An angle whose measure is between 0 and 90 degrees (non-inclusive).

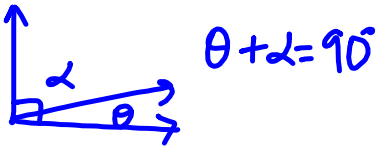
Obtuse Angle--> An angle whose measure is between 90 and 180 degrees (non-inclusive).



Perpendicular--> Two line segments are perpendicular when they meet at a right angle.

Angle Relationships:

Complementary Angles--> Two angles whose measures add to 90 degrees.



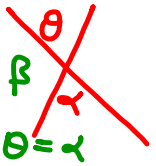
Supplementary Angles--> Two angles whose measures add to 180 degrees.

Adjacent Angles--> Angles that share a common vertex and a common side, but their interiors do not overlap.

θ, α are adjacent

Vertical Angles-->Two non-adjacent angles formed by the intersection of two rays, lines or line segments.

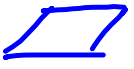
β+θ=180°
β+α=180°



θ, α are vertical angles.

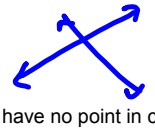
Shapes (2-dimensional)

Plane--> A 2-dimensional unbounded, flat region.

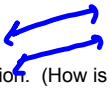


Coplanar points--> Two or more points that lie in the same plane.

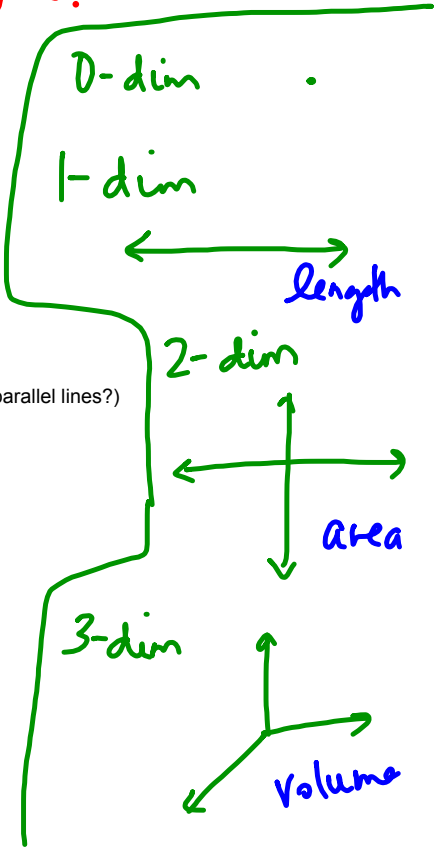
Intersecting Lines--> Two lines that intersect in only one point.



Parallel Lines--> Two distinct coplanar lines are parallel if they have no point in common.



Skew Lines--> Noncoplanar lines; lines that have no intersection. (How is this different from parallel lines?)



Congruent--> Two shapes are congruent if they are the same size and shape. That is, the first shape can be picked up and placed on top of the oth

Similar--> Two shapes are similar if they are the same shape, but not necessarily the same size; one of the shapes is a scaled version of the other s

Polygon--> A many-sided, closed 2-d shape made up of line segments for sides that meet at vertices.

- Convex--> A shape is convex if *every* line segment, formed by connecting *any* two points inside the shape, is wholly contained in the shape.
- Concave--> A shape is concave if it is not convex.
- Regular--> A polygon is regular if all of its sides and all of its interior angles are congruent.
- Interior Angle--> In a convex polygon, it's the inside angle formed by two adjacent sides.
- Exterior Angle--> In a convex polygon, it's the angle formed by the side of the polygon and the extended line from the adjacent side (for every
- Central Angle--> For a regular polygon, it's the angle formed by connecting a vertex to the center of the polygon and then to the consecutive v

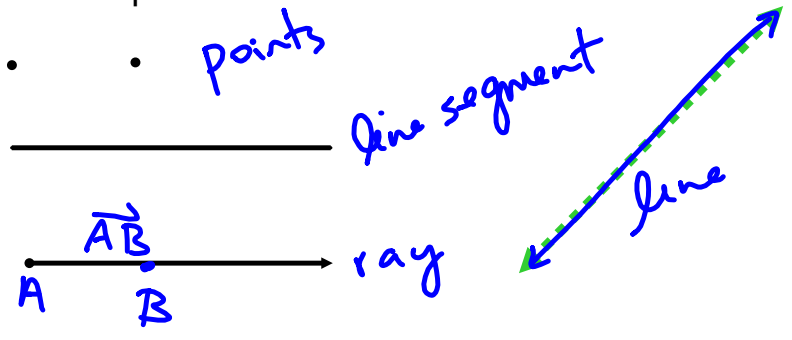
Triangle--> A 3-sided (straight sides), closed, two-dimensional shape.

- Isosceles Triangle--> A triangle with at least two sides that are of equal length.
- Equilateral Triangle--> A triangle with all three sides of equal length.
- Scalene Triangle--> A triangle with all three sides of different length.
- Obtuse Triangle--> A triangle with one obtuse angle.
- Right Triangle--> A triangle with one right angle.
- Acute Triangle--> A triangle with all acute angles.

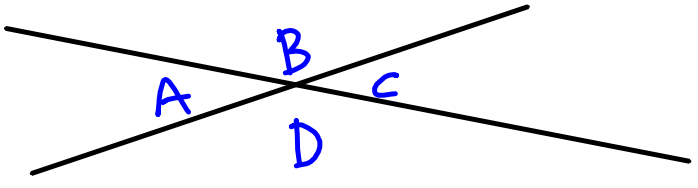
Quadrilateral--> A 4-sided (straight sides), closed, two-dimensional shape.

- Square--> A quadrilateral with four congruent sides and four right angles.
- Rectangle--> A quadrilateral with four right angles.
- Parallelogram--> A quadrilateral with two pairs of parallel sides.
- Kite--> A convex quadrilateral with two distinct pairs of adjacent congruent sides.
- Rhombus--> A quadrilateral with four congruent sides.
- Trapezoid--> A quadrilateral with exactly one pair of parallel sides.
    - Isosceles Trapezoid--> A trapezoid whose non-parallel sides are congruent.

Examples:



$\overrightarrow{AB} \neq \overrightarrow{BA}$



A, C } vertical angles

B, D }

B, C supplementary

11.1

A #7) $18°35'29'' + 22°55'41''$

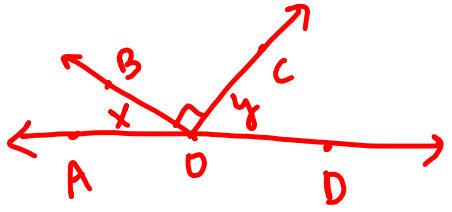
$= 40° 90' 70''$

$= 40° 91' 10''$

$= 41° 31' 10''$

° degree
' minute
'' second
60 mins = 1°
60'' = 1'

9) (a)



$m(\angle AOB) = \frac{1}{3} m(\angle COD)$

① $x = \frac{1}{3} y$

$x + 90 + y = 180$

② $x + y = 90$

$x = \frac{1}{3}(90)\left(\frac{3}{4}\right) = 22.5°$

② $\frac{1}{3}y + y = 90°$

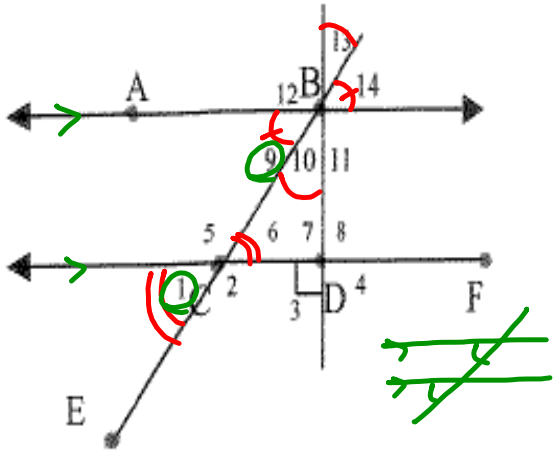
$\frac{4}{3}y = 90°$

$y = 90\left(\frac{3}{4}\right) =$

$45 + 22\frac{1}{2}$

$= 67\frac{1}{2}°$

$y = 67.5°$



VOCABULARY:

concurrent lines: $\overleftrightarrow{AB}$ and $\overleftrightarrow{CB}$

collinear pts: A & B or C & D

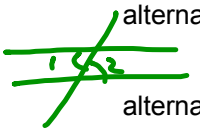
coplanar lines: $\overleftrightarrow{BD}$ $\overleftrightarrow{EF}$

ANGLES:

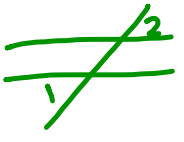
vertical $\angle 13 \cong \angle 10$

corresponding $\angle 6 \cong \angle 14$, $\angle 1 \cong \angle 9$ or $\angle 7 \cong \angle 12$

alternate interior

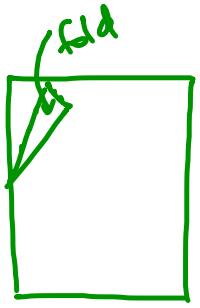


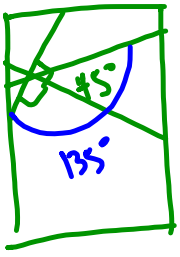
alternate exterior



corresponding

Z-property theorem:


fold


45°
135°