Geometry Unit 2: Angles

Bronx Early College Academy

Christopher J. Huson PhD

28 September - 7 October 2022

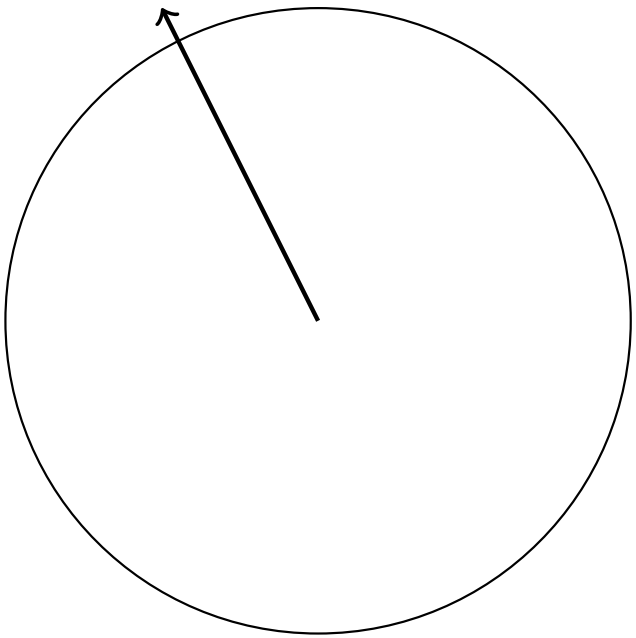
2.1 Angle notation, measures	28 September
2.2 Angle addition	29 September
2.3 Angle pairs	30 September
2.4 Angle bisectors	3 October
2.5 Triangle sum; equilateral, isosceles $\triangle$ angles	4 October
2.6 Review	6 October
2.7 Test: Angle measures	7 October

Open Middle: complementary and supplementary puzzle

Learning Target: I can measure angles

CCSS: HSG.CO.A.1 Know precise geometric definitions 2.1 Wednesday 28 Sept

Do Now: On the clock face, which is more time, from the 1 to the 3, or from the 11 to the 2? (insert clock image)

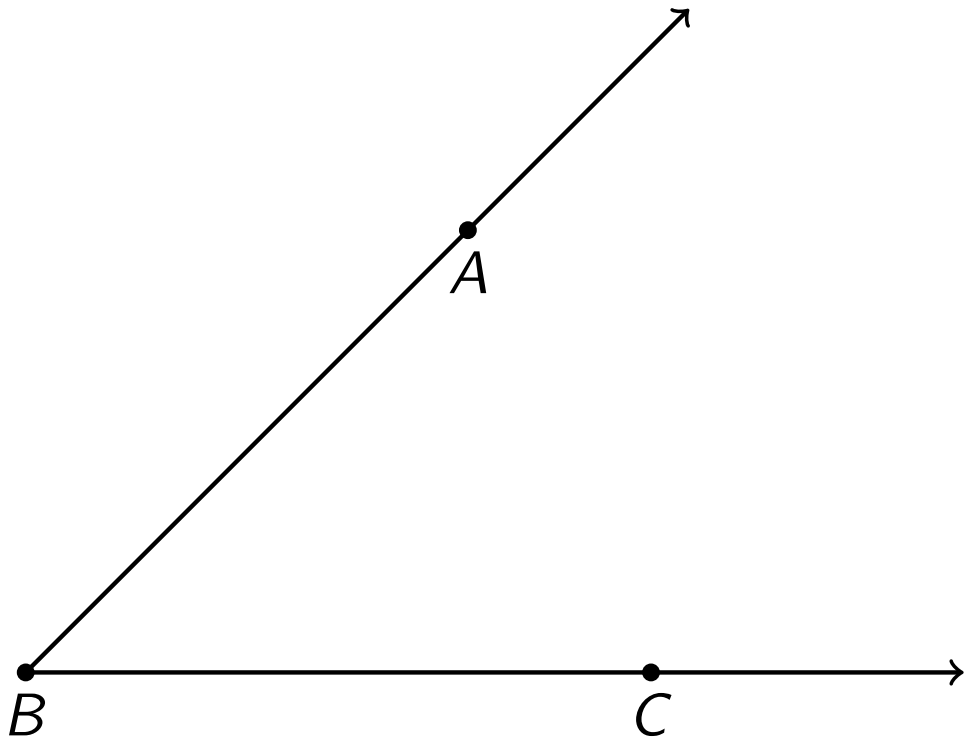


1. Write down an equation to represent the situation.

Lesson: Angle measures, internal, external, acute, obtuse, right

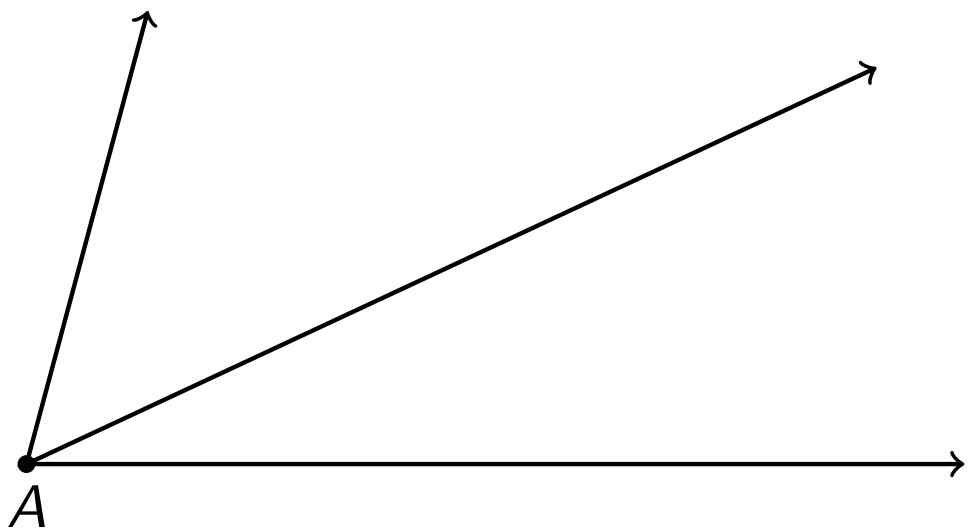
Angle: two rays with a common endpoint or vertex

Rays $\overrightarrow{BA}$ and $\overrightarrow{BC}$. Vertex B. Written notation is $\angle ABC$ or $\angle B$.



Angle measures: the Babylonian system of 360° in a circle

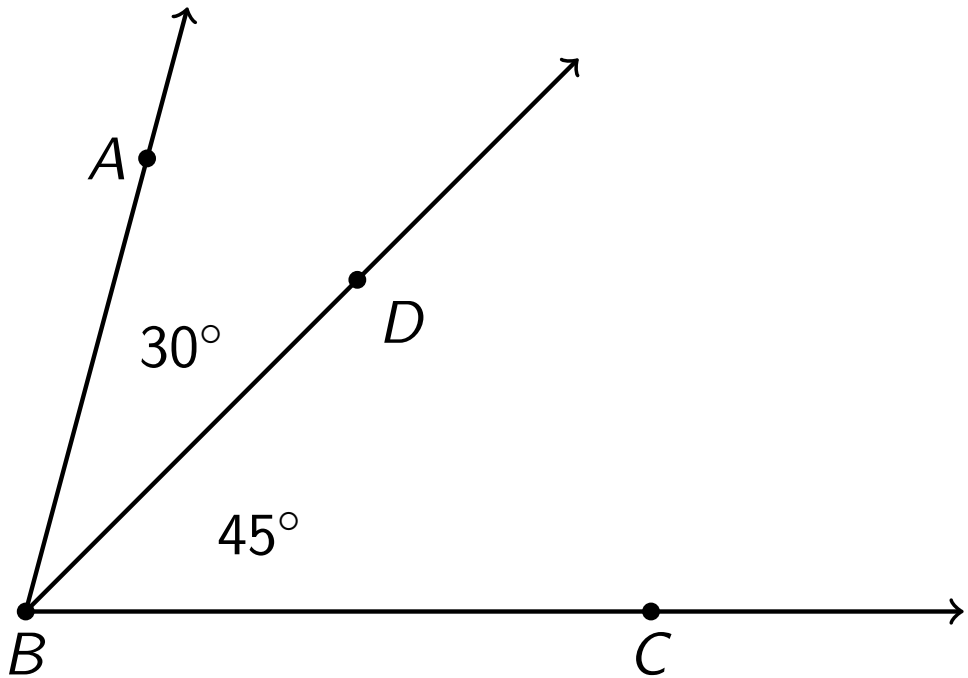
- A full rotation is 360° (a full "turn").
- A half turn (straight line) is 180°.
- 90° is a quarter turn or a *right* angle.
- *Acute* angles measure less than 90°. *Obtuse* angles measure more than 90°.
- *Adjacent* angles ("next to" each other) share a common ray and are external to each other.



Learning Target: I can solve for angle measures

CCSS: HSG.CO.A.1 Know precise geometric definitions 2.2 Thursday 29 Sept

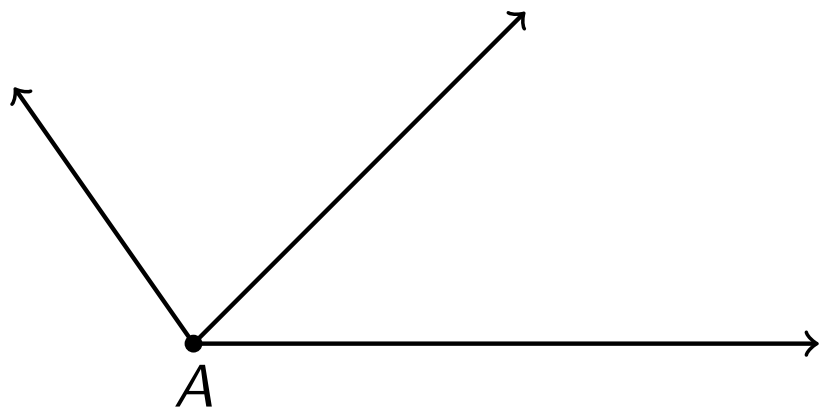
Do Now: $m\angle ABD = 30°$, $m\angle DBC = 45°$. Find $m\angle ABC$.



Lesson: Angle addition problems, vertical angles

Angle addition postulate

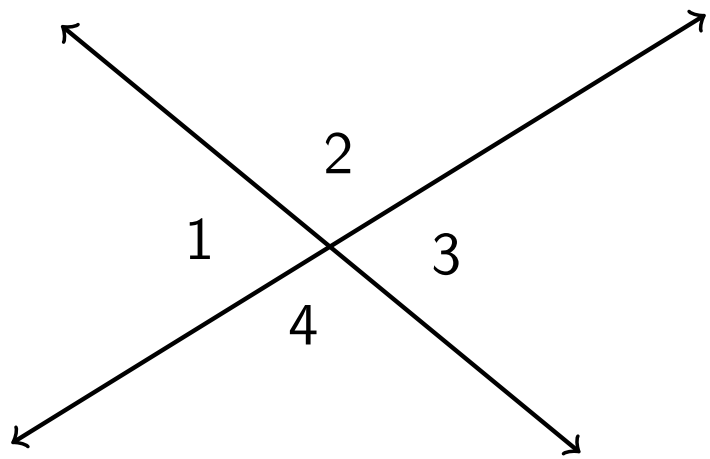
For adjacent angles, the sum of their measures is the measure of their combined angle.
Special pairs of angles [make a new slide]
A *linear pair* are two angles that make a straight line.
Opposite rays have a common endpoint and make a line. (They form an angle measuring 180°).
Angles whose measures sum to 180° are *supplementary*.
Angles whose measures sum to 90° are *complementary*.



Learning Target: I can identify vertical angles

CCSS: HSG.CO.A.1 Know precise geometric definitions 2.3 Friday 30 September

Definition: *Vertical angles* are angles opposite each other when two lines intersect. $\angle 1$ and $\angle 3$ are vertical angles, as are $\angle 2$ and $\angle 4$.



Lesson: Angle addition problems, vertical angles

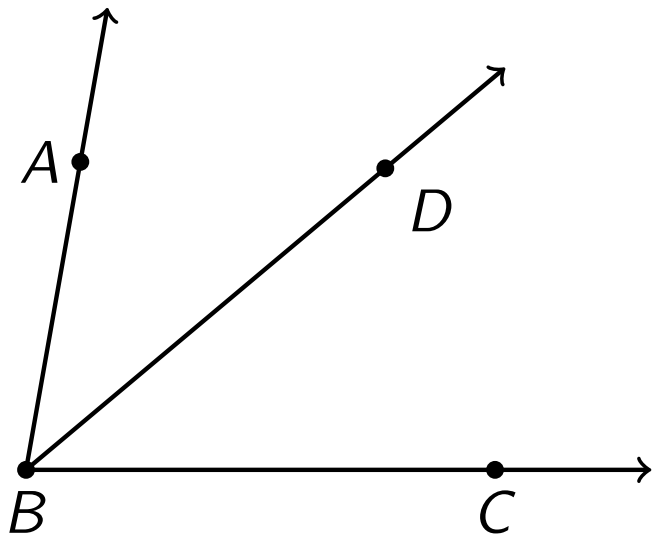
Learning Target: I can bisect angles

CCSS: HSG.CO.A.1 Know precise geometric definitions 2.4 Monday 3 October

Definition of angle bisector

Angle bisector: a ray dividing an angle into two congruent angles.

As shown, $\overrightarrow{BD}$ bisects $\angle ABC$ if and only if $\angle ABD \cong \angle CBD$.



Angle relationships

Review: Angle postulates and theorems you have learned.

1. $\perp$ lines and complementary $\angle$s make 90°
2. linear pairs add to 180°
3. vertical $\angle$s are $\cong$
4. definition of an angle bisector

Open Middle problem (fun)

Use digits from 0 to 9. Using a digit no more than once.

The first two angle measures are complementary. The second two angles supplementary. (degrees)