Mathematics Class Slides

Bronx Early College Academy

Christopher J. Huson PhD

21-25 September 2020

BECA / Dr. Huson / Geometry Unit 1

GQ: How do we define the basic elements of geometry?

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.1 Monday 21-22 Sept

Welcome back to school

Do Now: Algebra skills check

1. Remote learning attendance
2. Take out notebooks (or blank paper)
3. Complete Do Now on Google Classroom

Supply list: Composition book, folder, looseleaf, pencils & pens, compass and ruler, calculator
Lesson: Points, line segments, length; Segment addition postulate
Homework: Begin Khan Academy unit (due Friday)

Take class notes in a composition book

Use this notebook format (required)

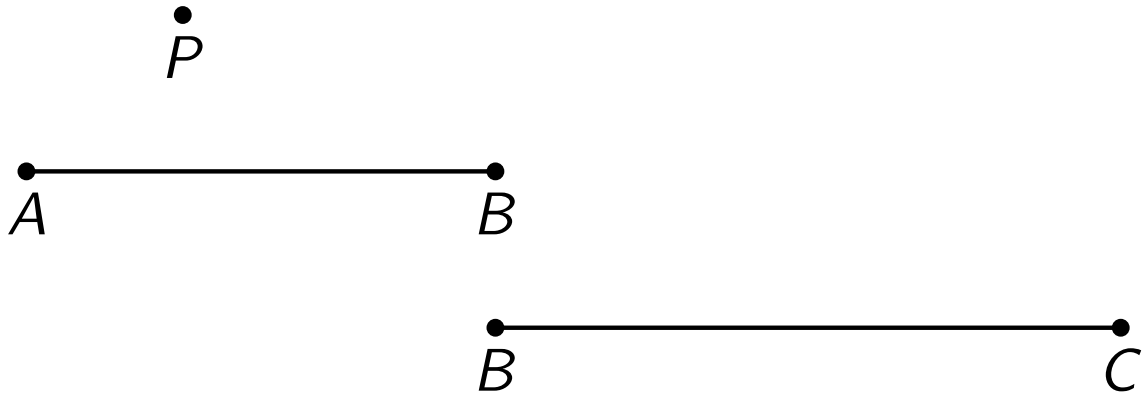
1. In the front, write your name, my contact info, your passwords
2. Each page in the top left corner:
   First+Last Name
   21 September 2020
   1.1 Segment addition postulate
3. Copy definitions using your own words
4. Write down example diagrams and problems

Point: a location, a dot, has no size; label with capital letter, P

Line segment: two points and all the points between them; label with *end points* and a bar, $\overline{AB}$

Example: Points and line segments

Shown points P, A, B, C, line segments $\overline{AB}$, $\overline{BC}$



Given $AB = 3$, $BC = 4$.

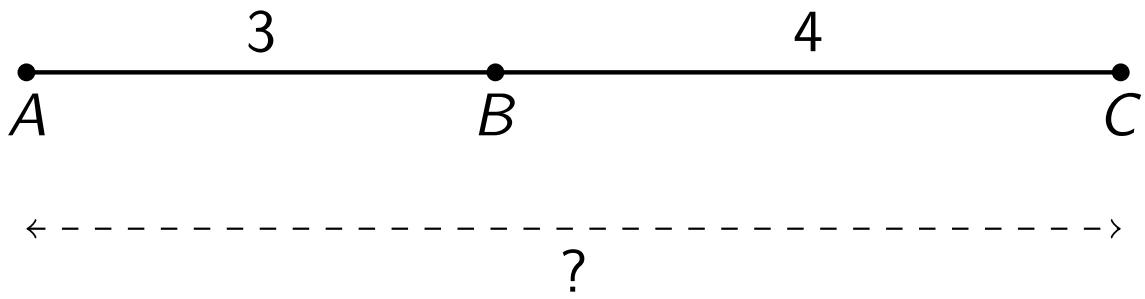
Notation: the length of a line segment is written as the two end points without a bar over them, AB.

Example: Points and line segments

Segment Addition Postulate

Shown *collinear* points A, B, C. Given $AB = 3$, $BC = 4$.

Find AC.



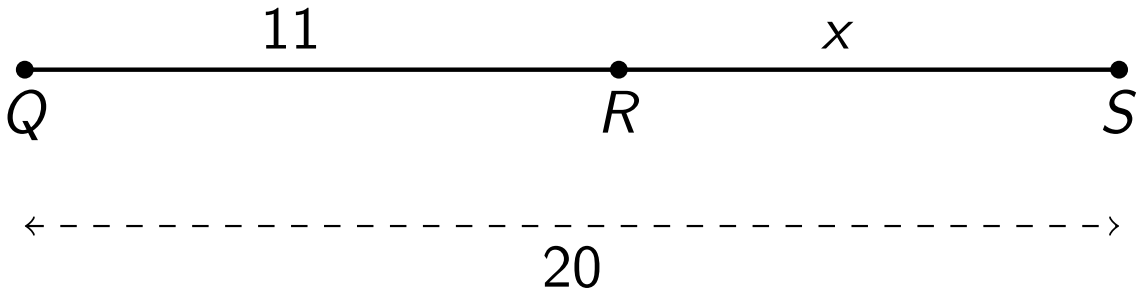
Definition: Points are *collinear* when they lie on a straight line.

Example 2: Points and line segments

Segment Addition Postulate

Given collinear points Q, R, S, with $QR = 11$, $QS = 20$.

Find RS.

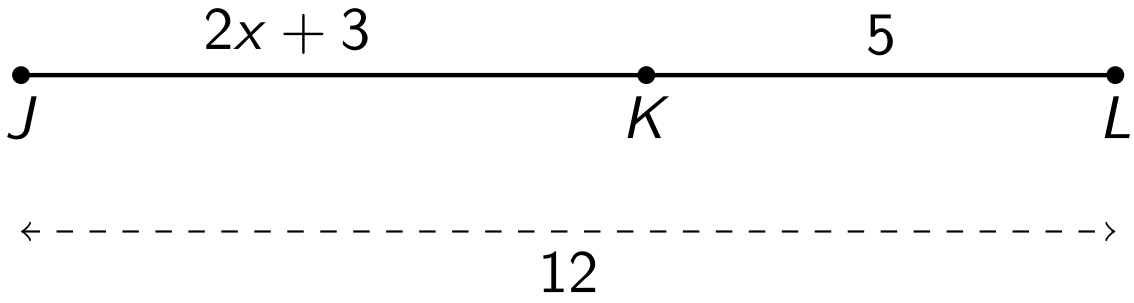


1. How would you check your answer?
2. Which equation represents the situation?

$11 + x = 20$ $\qquad\qquad$ $x = 20 - 11$

Example 3: Segment addition postulate

Given $\overline{JKL}$, $JK = 2x + 3$, $KL = 5$, $JL = 12$. Find x.



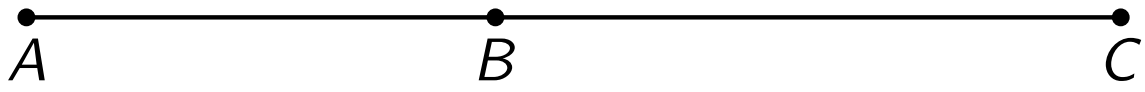
1. Write down an equation to represent the situation.

2. Solve for x.

3. Check your answer.

Example 4 (challenge): Segment addition postulate

Given $\overline{ABC}$, $AB = 3x - 7$, $BC = x + 5$, $AC = 14$. Find AB.



GQ: How do we solve for segment lengths?

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.2 Wedn 23-24 Sept

Do Now: Complete Google Form in G-Classroom

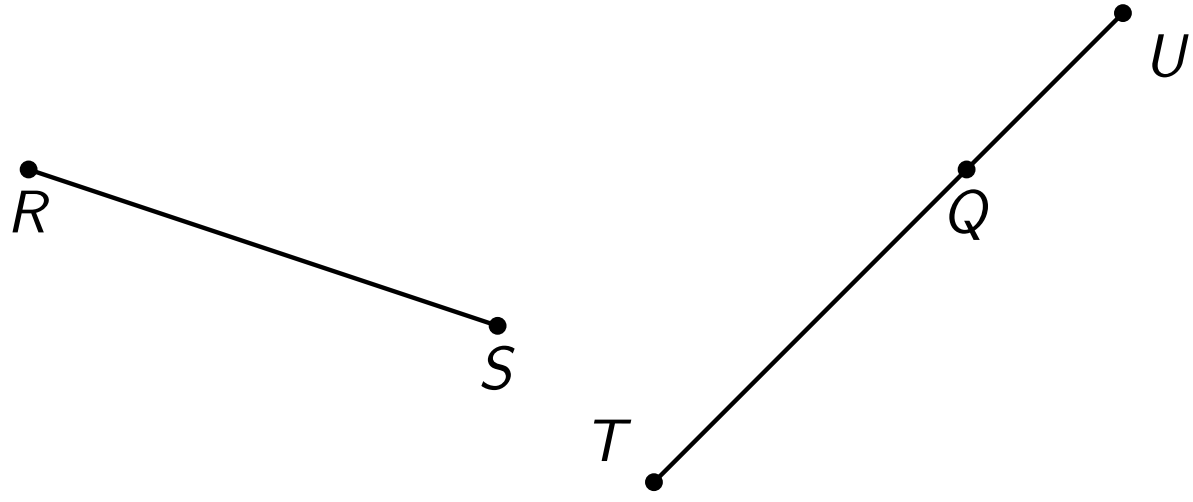
Lesson:
Point, line segment, end point, collinear, distance or length;
line, ray, plane, coplanar, congruent, angle, vertex

Midpoints, bisectors, practice segment addition situations

Review: points, segments, length

Give an example of each geometric object. Use proper notation.

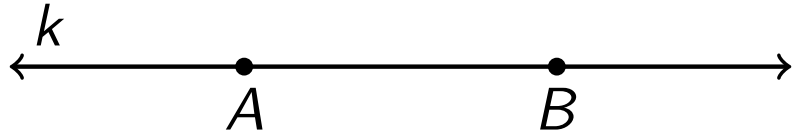
1. point
2. line segment
3. end point
4. three collinear points



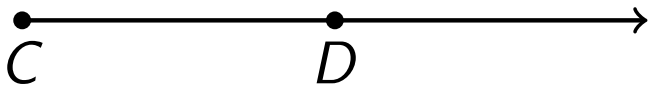
5. Given $TQ = 1.4$, $QU = 0.6$. Find TU.

More definitions: lines, rays, planes

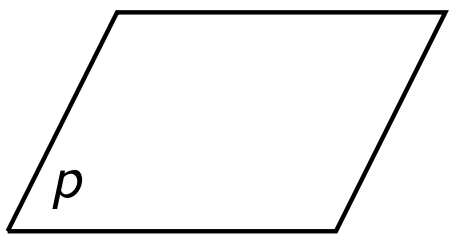
A *line* extends infinitely in both directions, $\overleftrightarrow{AB}$.
(sometimes labeled with a small letter, for example, line k)



A *ray* has one end point and extends infinitely in one direction, $\overrightarrow{CD}$.

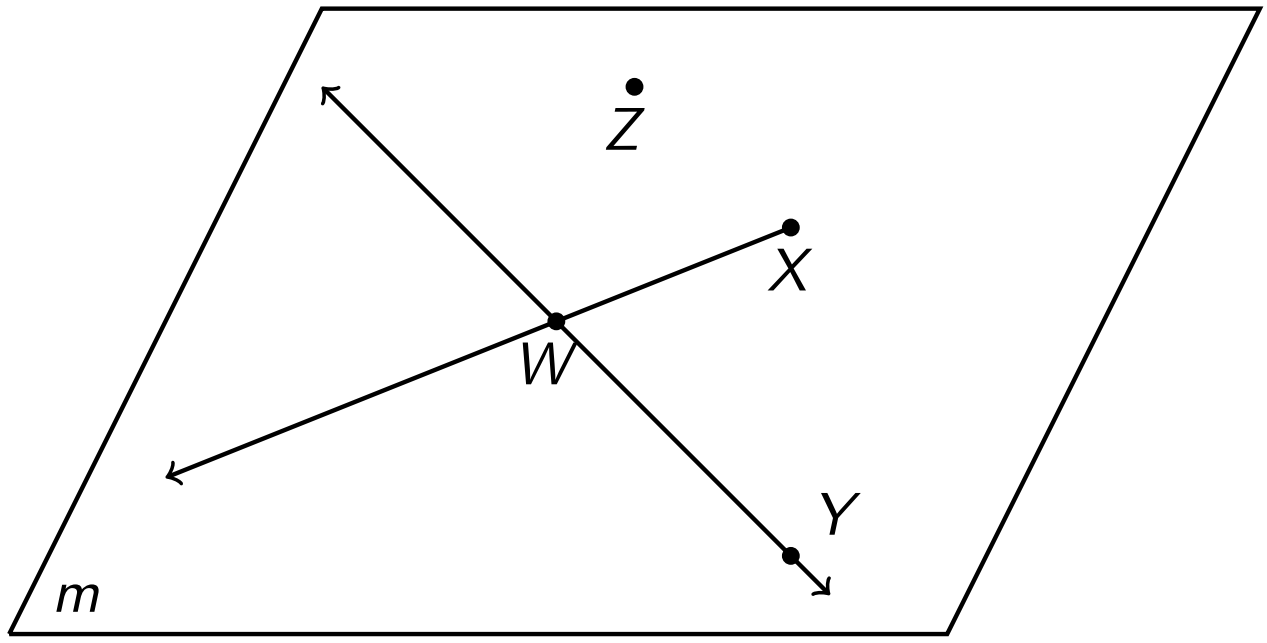


A *plane* is flat and extends infinitely in two directions, p.



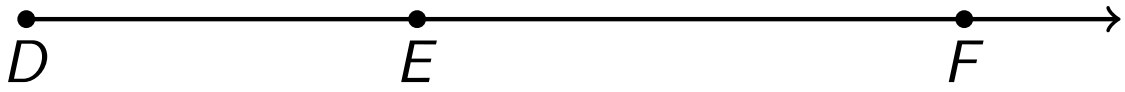
Several objects are shown in a plane

1. T F The name of the plane is m
2. T F The line $\overleftrightarrow{WY}$ is in the plane
3. T F The ray $\overrightarrow{WX}$ is shown in the plane
4. T F Points W, X, and Z are collinear



Solve for length using the Segment Addition postulate

Given $\overrightarrow{DEF}$, $DE = x + 1$, $EF = 9$, $DF = 3x$. Find DE.



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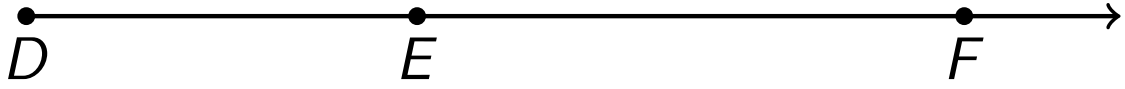


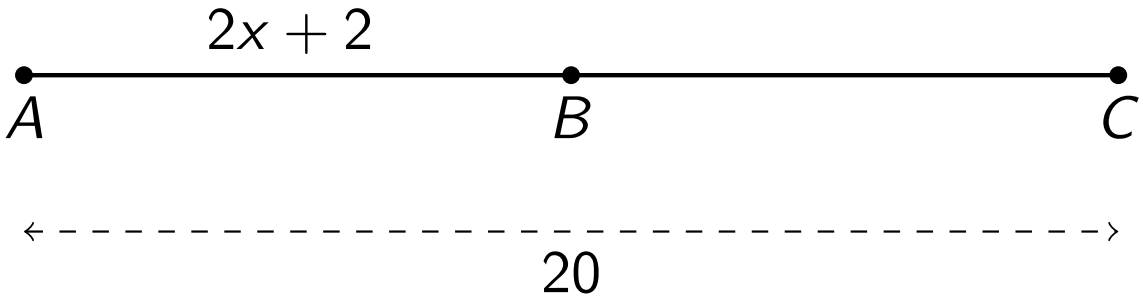
1. Sketch and label the situation
2. Write a geometric equation
3. Substitute algebraic values
4. Solve for x
5. Answer the question
6. Check your answer

The midpoint of a line segment

Also called the bisector

Given $\overline{ABC}$, with $AB = 2x + 2$, $AC = 20$. $AB = BC$

Find x.



Definition: the *midpoint* or *bisector* of a line segment divides it exactly in half.

GQ: How do we work on a number line?

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.3 Thurs 24-25 Sept

Do Now: Complete Google Form in G-Classroom

Lesson: *Congruent* line segments;
sketch, draw, construct; intersection, coplanar

Practice midpoints and segment addition situations

Homework reminder: Khan Academy, watch the videos first, take notes

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Getting to know Classkick

Complete each item. Use the Classkick tool bar.

1. Circle the point J with a red pen
2. T F The line $\overleftrightarrow{WY}$ is in the plane
3. T F The ray $\overrightarrow{WX}$ is shown in the plane
4. T F Points W, X, and Z are collinear