Unit 1 – Geometric Fundamentals

Date	Target	Assignment	Done!
R 8-17	1.1a	1.1a Worksheet	
F 8-18	1.1b	Pre-Assessment / 1.1b Worksheet	
M 8-21	1.1	1.2a Worksheet	
T 8-22	1.2a	1.2b Worksheet	
W 8-23	1.2b	1.2c Worksheet	
R 8-24	1.2c	1.1-1.2 Review Worksheet	
F 8-25	1.1-1.2	1.1-1.2 Quiz	
M 8-28	1.3	1.3 Worksheet	
T 8-29	1.3	1.3 Quiz	
W 8-30	REV	Unit 1 Review	
R 9-1	TEST	Unit 1 Test	

Target 1.1 - Demonstrate knowledge of core definitions include: point, line, segment, ray, plane, angle, etc.

1.1 day 1 – Geometry essentials (Vocabulary)
1.1 day 2 - Geometry essentials (Constructions)

Target 1.2 - Determine the length, midpoint, and ratios of segments

1.2a – Lengths of a Segments Using Coordinates and Segement Addition
1.2b – Midpoint and Distance Formula

Target 1.3 – Discover patterns in a sequence of numbers and figures

Name: _____

1.1 – Geometry Essentials (Vocabulary)

Target 1 – Demonstrate knowledge of core definitions include: point, line, segment, ray, plane, angle, etc.

Vocabulary

(space provided to draw and create the various geometric words)

Point: *occupies no_____ or _____.*
It is represented by a _____ and _____ such as A, B, C, D, or E.

Volume, space, location, dot, capital letter

Line: *can be defined by _____ it passes _____.*

two points

Line segment: _____ *of a _____. It has two _____ such as C and D and is written _____.*

part, line, endpoints, $\overline{CD}$

Ray: a _____ of a line that starts at a _____ and extends forever in a certain direction.

portion, point

Plane: *a _____ figure that continues forever and can be defined by listing any _____ points on it which are not on a _____.*

two dimensional, three, line

YOU TRY NOW!

1. *Draw and label 3 points that are collinear.*	**2.** *What is $\overleftrightarrow{AB}$? Draw it.*
3. *Draw and label an example of a point.*	
4. *Draw a line and name is 'n.'*	**5.** *Draw and label 3 points that are collinear. Identify a point, a line and a segment. Use proper notation.*

Annotate Here

Other Vocab:

Postulate:
Statement that is accepted to be true without proof.

Collinear:
Three or more points on a straight line.

YOU TRY NOW

1. R B V

2. Line: A B

3. P

4. n

5. A V W : point V; $\overleftrightarrow{AV}$; $\overline{WV}$

Vocabulary *(space provided to draw and create the various geometric words)*

Angle: *formed by _____ with the same endpoint called the _____.*

Naming Angles

1) *Call the angle by its vertex.*

2) *Use 3 points with the vertex in the middle*

Types of Angles

0° < Angle measure < 90° ***90° < Angle measure < 180°***

Angle measure = 180° ***Angle measure = 90°***

Angle Addition Postulate

If R lies within $\angle QTV$, then $m\angle QTR + m\angle RTV = m\angle QTV$

Annotate Here

two rays, vertex

Indicating Measurement of an angle

Below write out what "$m\angle B$" means.

1.1 – Geometry Essentials (Constructions)

Target 1 – Demonstrate knowledge of core definitions including: point, line, segment, ray, plane, angle, etc.

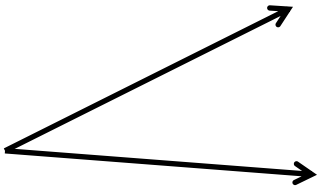
Vocabulary

Congruent: _____ *or* _____ *of the same length*

Contructing a copy of a single line segment

_____

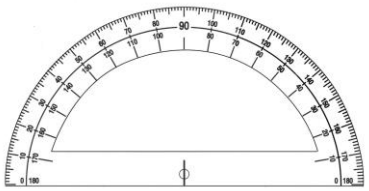
Contructing a a copy of an angle



Annotate Here

Name these tools

_____



_____

How do you show congruency between:

A) segments?

B) angles

1.2a – Lengths of a Segments Using Coordinates and Segement Addition

Target 2 – Determine the length, midpoint, and ratios of segments

Segment Addition Postulate

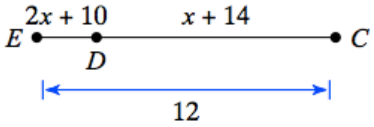
If W is between F and X on a line segment,

then _____+ _____ = $\overline{FX}$

Draw the situation above here

Example 1: Use segment addition

Find the length of $\overline{DC}$?

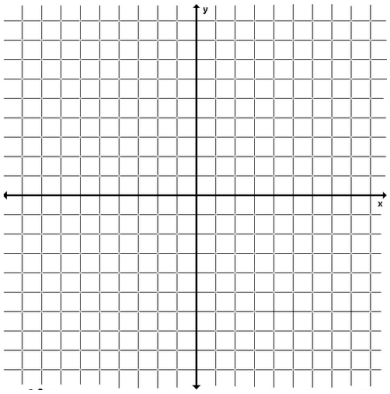


Example 2: Use segment addition

Points A, B, C, and D are collinear and positioned in that order. Find the length of $\overline{BD}$ if $AB = x + 11$, $CD = 10$, $BD = x + 24$, and $AC = x + 16$.

YOU TRY NOW! (cont. to next page for additional question)

1) *The end points of $\overline{AB}$ are at (8, 3) and (8, 10). One of the endpoints of $\overline{CD}$ is at (2, 4). $\overline{AB} \cong \overline{CD}$. $\overline{CD}$ is in the first and second quadrant and parallel to the x-axis. What is the other end point of $\overline{CD}$?*



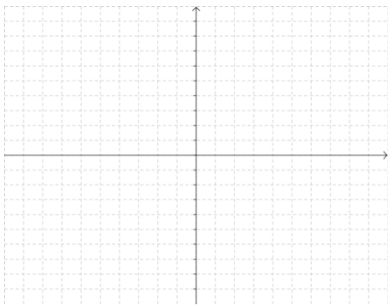
YouTryNow
1. (-5, 4)

Annotate Here

What is the ratio of $\overline{ED}$ to $\overline{DC}$?

Below, label the following on the coordinate plane:

1) ***y-axis***
2) ***x-axis***
3) ***Quadrants I-IV***
4) ***origin***

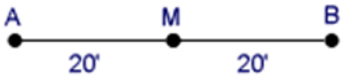


YOU TRY NOW! (cont.)

2) *(HONORS) Points A, B, and C collinear and positioned in that order. Find largest possible length of $\overline{AC}$ if $AB = 3x^2 - 2x + 8$, $BC = 5$, and $AC = 4x^2 - x + 7$.*

Annotate Here

Segment Length vs Segment Name



Segment Name

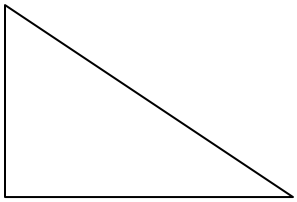
Segment Length

YOU TRY NOW
2. $x = 3$ or $x = -2$; $AC = 40$

1.2b – Midpoint and Distance Formula

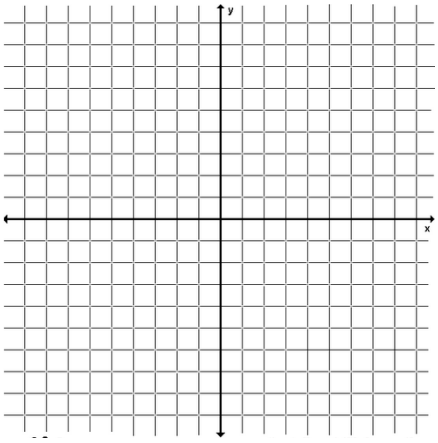
Target 2 – Determine the length, midpoint, and ratios of segments

Pythagorean Theorem

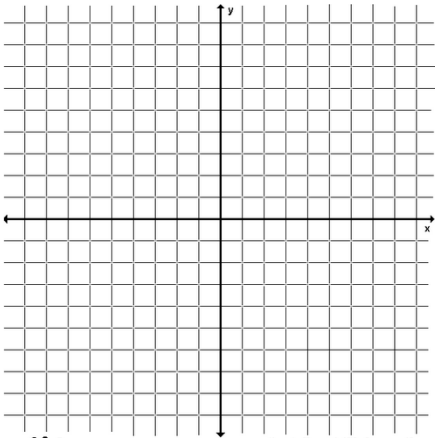


Example 1: Lengths of segments when graphed diagonally

Find the length of segment $\overline{RT}$ where R (-1, 0) and T (4, 2).



Distance Formula



Annotate Here

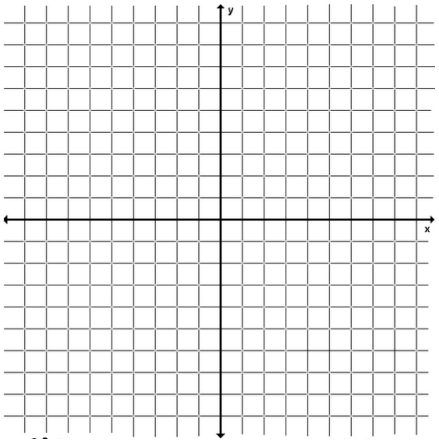
Theorem:

A conditional statement that can be proven true using postulates and other theorems.

What's a synonym of "distance?"

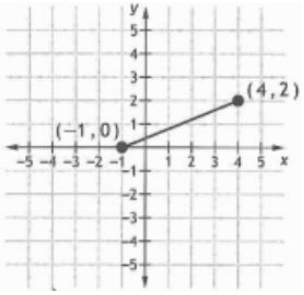
Example 2: Applying the distance formula

Find the distance between (2, -1) and 5, 3). Draw a diagram to confirm.



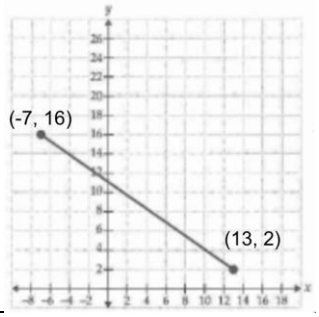
Midpoint Formula

Example 3: Find the midpoint of the given segment.



YOU TRY NOW!

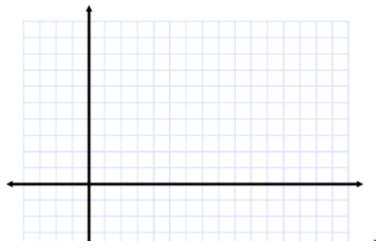
1. *Find the length of the segment shown to the right.*



2. ***Find an endpoint:*** *The midpoint of $\overline{JK}$ is M (6, 1). One endpoint is J (1, 4). Find the coordinates of endpoint K (Use the coordinate plane on the right if needed).*

Annotate Here

What is the purpose of the subscript?



YOU TRY NOW

1. $d = 2\sqrt{149}$ units or ≈ 24.413 units
2. $K(11, -2)$

1.2c – Ratios of Segments

Target 2 – Determine the length, midpoint, and ratios of segments

Example 1: Model the situation and use ratios and proportions to find a partition

If B partitions (divides) a directed line segment $\overline{AC}$ into a ratio 3:2, what is the length AB if AC is 10. Draw the diagram to better visualize the situation.

YOU TRY NOW!

1) *R is on $\overline{ST}$, and $\overline{ST}$ has a length of 63. If $\frac{SR}{RT} = \frac{2}{5}$, how far is R from T?*

2) Point B partitions the line segment $\overline{AC}$ into a ratio of 1:3. What is the smallest length that $\overline{AC}$ could be if $AB = 2x - 1$ and $BC = x^2 + 2x$?

3) *Using the same line as number 1, if ST = 90, and $\frac{SR}{RT} = \frac{1}{10}$, how far is R from T?*

Annotate Here

*What is a **ratio**?*

A comparison of ___ items

What are three ways to write a ratio?

1.
2.
3.

*What is a **proportion**?*

Two _____ _____ to each other

YOU TRY NOW

1. x = 42; 105 units 2. x = 3 or -2; 20 units 3. x = 10; 100 units

1.3– Using Inductive Reasoning to Discover Patterns in Numbers
Target 3 – Discover patterns in a sequence of numbers and figures

Vocabulary

Inductive Reasoning: a way to decide if something is _____ or _____.

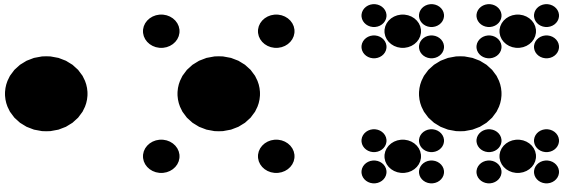
Example 1: Make a conjecture for the next term in the sequence. Then, determine the next number in each sequence .

2, 6, 22, 56, 114, ….

Example 2: Make a conjecture for the next term in the sequence. Then, determine the next number in each sequence.

14, 22,32, 44, ….

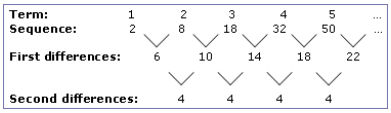
Example 3: Determine the number of circles in the third iteration



Original **Iteration 1** **Iteration 2** **Iteration 3**

Annotate Here

(true, false)



1st Difference = Linear Function

2nd Difference = Quadratic Function

3rd Difference - Cubic

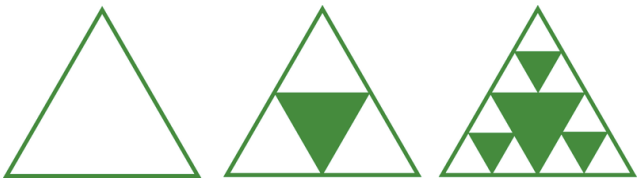
YOU TRY NOW!

Make a conjecture for the next term in the sequence. Determine the next number in each sequence. Finally describe the function as linear, quadratic, or cubic.

1) 5, 15, 37, 77, 141, ….

Conjecture: _____
Next number in sequence: _____
Name of function: _____

2) How many triangles are there in the third iteration? (include both shades)



Original Iteration1 Iteration 2 Iteration 3

3) Tell whether the following statement is true or false. If false, provide a counterexample (an scenario that would proves the statement false)

"If the food you eat is sweet, then you're eating junk food."

Annotate Here

YOUTRYNOW
1. pattern is increasing; 235; cubic 2. 40 triangles 3. False, i.e. answer: apple