Unit 1 Part II

Basics of Geometry

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Packet Due: \_\_\_\_\_\_\_\_\_\_\_\_\_

TEST Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 1 Lesson 6: Midpoint

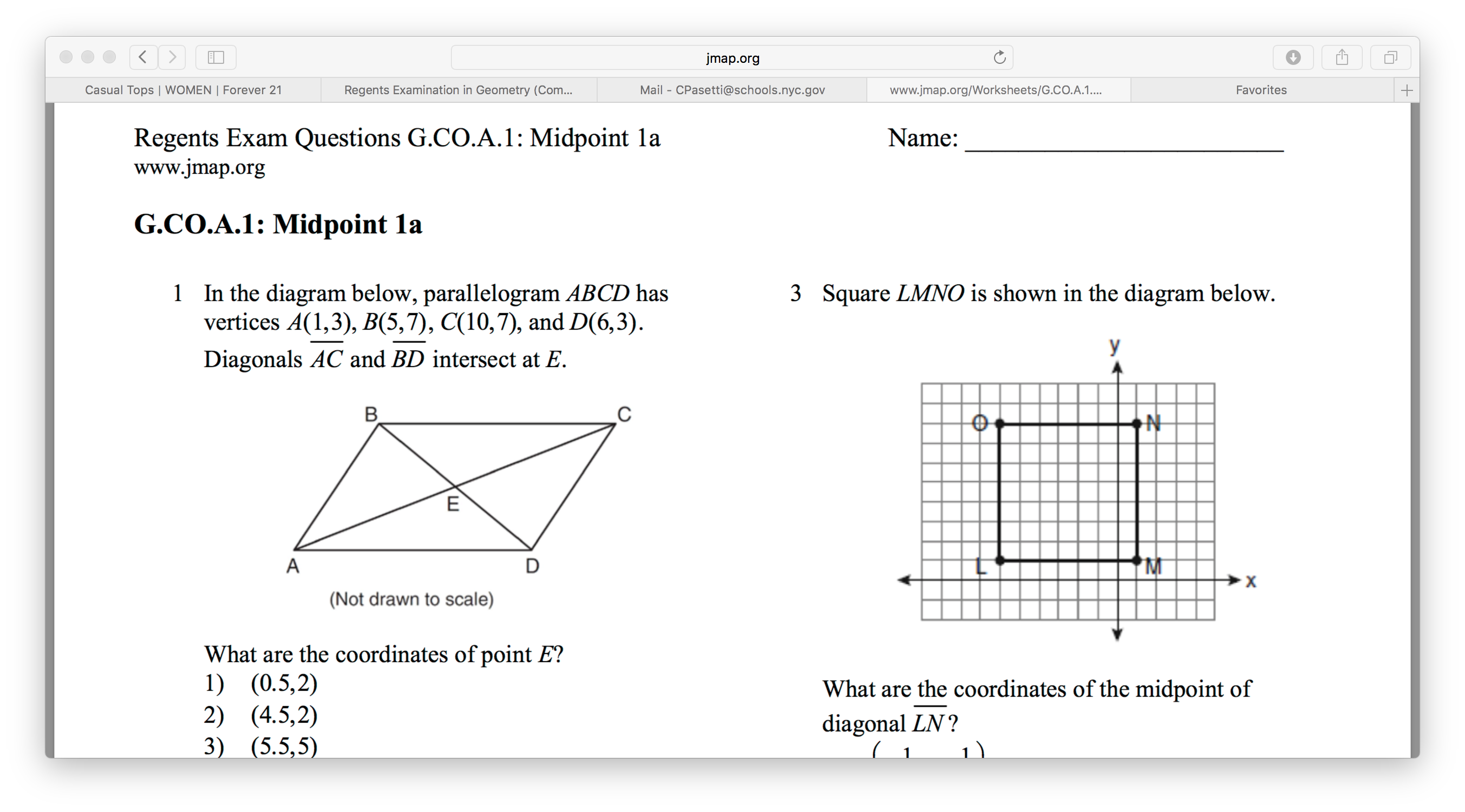
Aim:

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| **Do Now**: Find the midpoint of AC and label it B.  C  A    Create a formula to find the midpoint on a number line. |

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| MIDPOINT formula  When two coordinate points ( and ( are given. |
| **How does it work?**  Let’s find the **midpoint** of where A(-1, 3) and B(4, 6) are plotted on the coordinate plane  Step 1: Plot points and Label Points A and B (optional)  Step 2: Plug into formula and simplify in calculator |

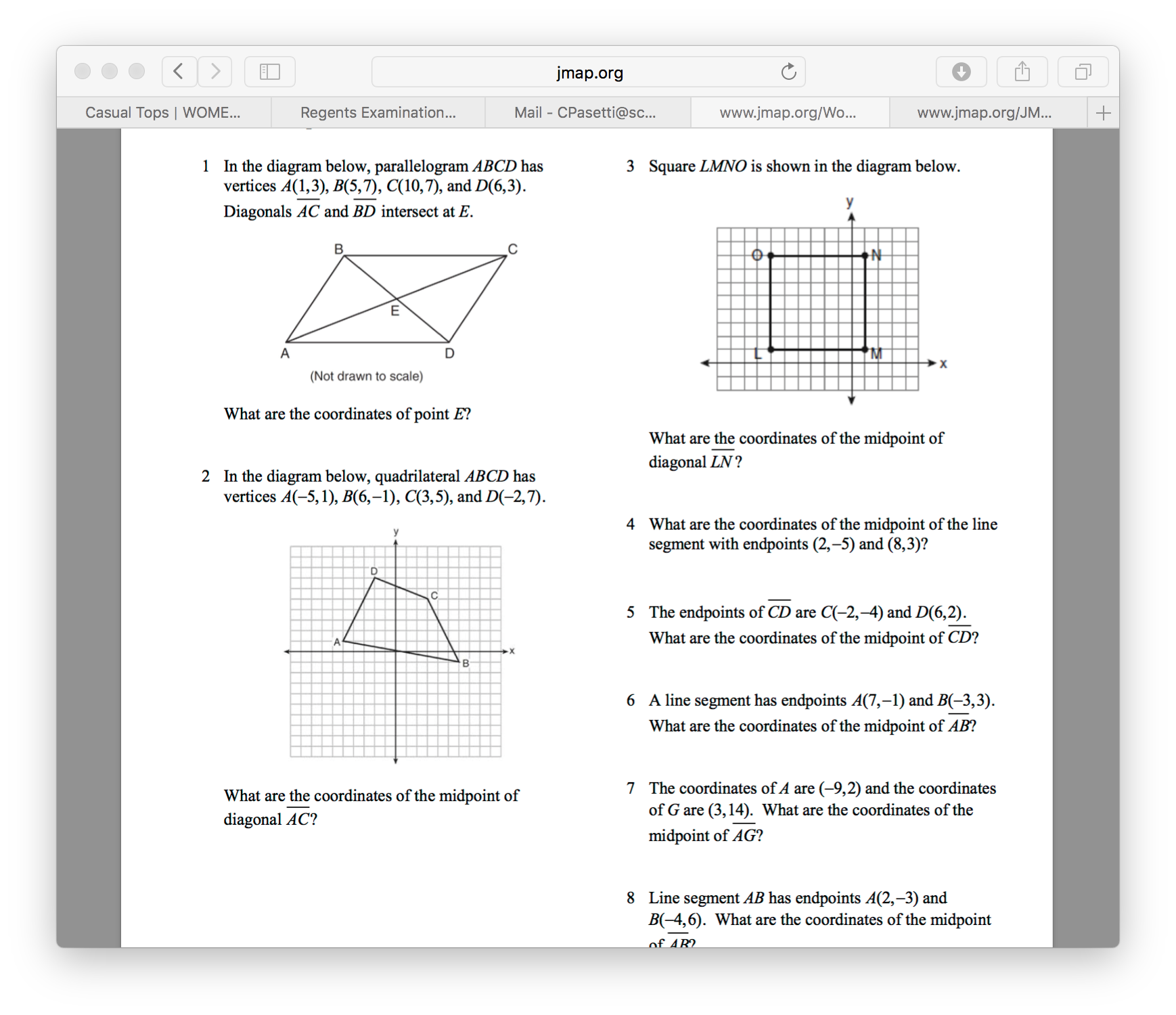
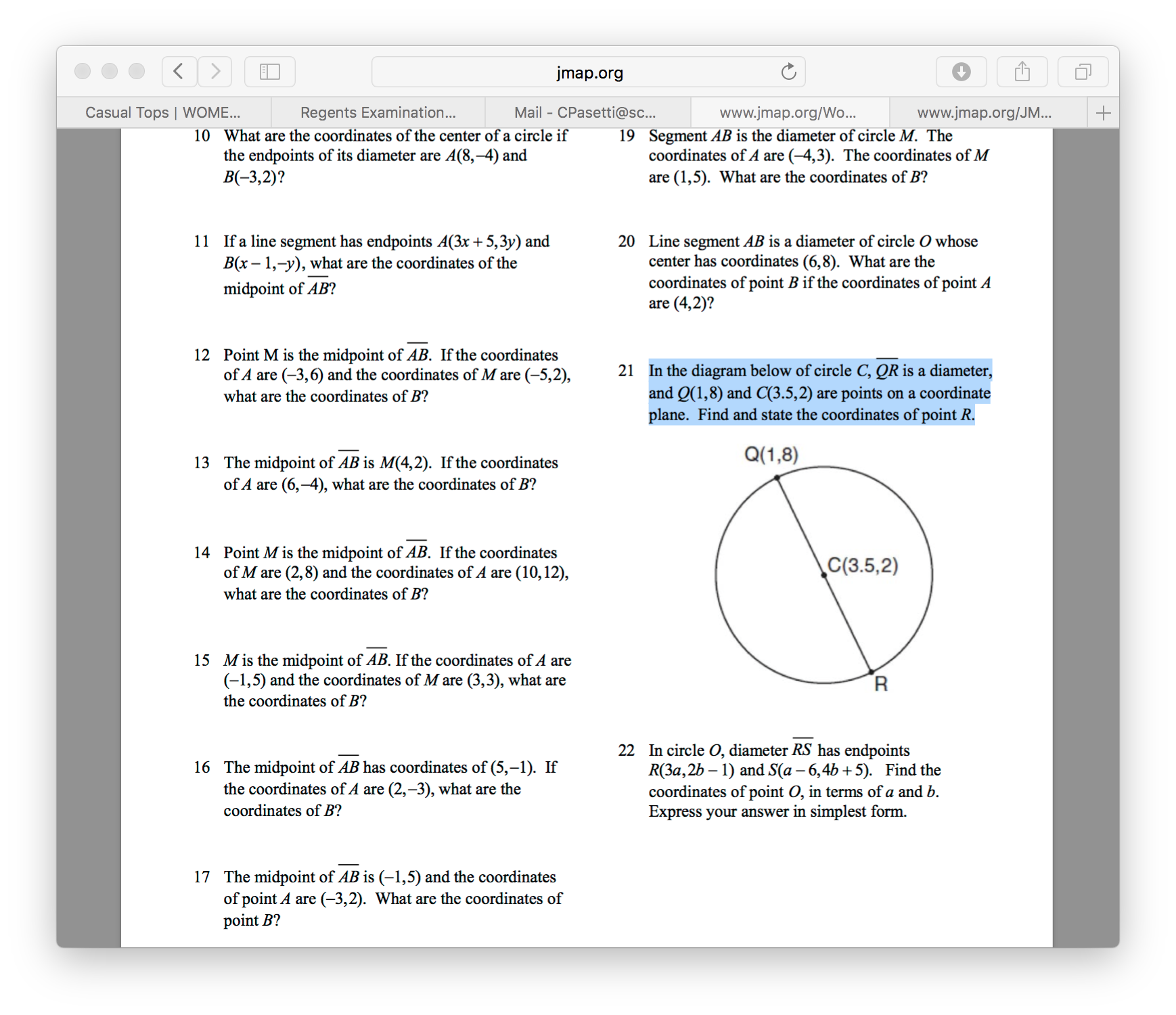
**You try**

1. What are the coordinates of the **midpoint** of the line segment with **endpoints (2,-5) and (8,3).**
2. What are the coordinates of the **midpoint** of a line segment with **endpoints (5, 3) and (1/2, 7)**



1. Square LMNO is shown in the diagram below. What are the coordinates of the **midpoint** of diagonal
2. The center of circle *Q* has coordinates (3,-2). If circle *Q* passes through *R*(7,1), what is the length of its diameter?
3. *M* is the midpoint of *AB*. If the coordinates of *A* are (-1,5) and the coordinates of *M* are (3,3), what are the coordinates of *B*?

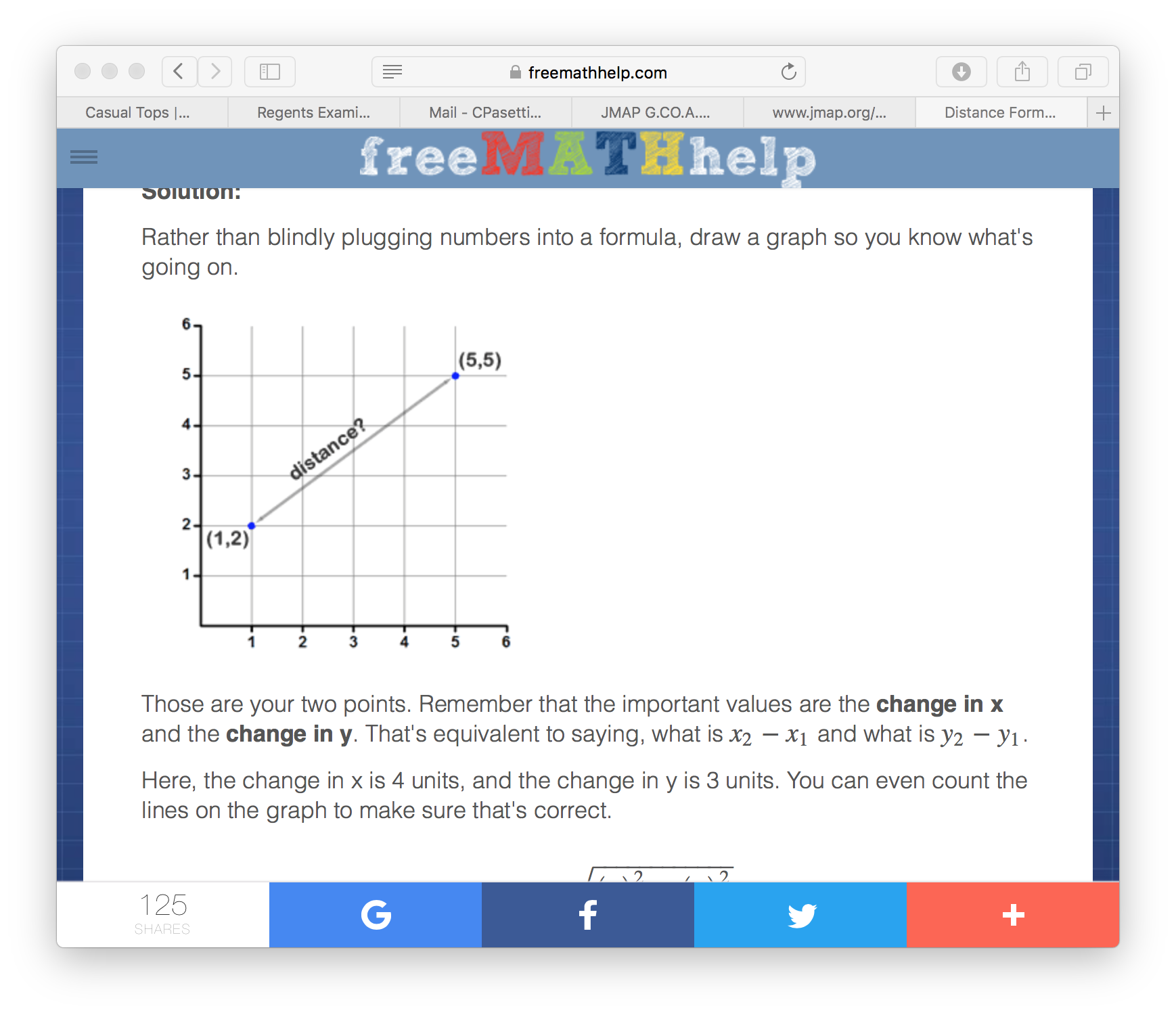
**Lesson 6: Homework**

1. The midpoint of *AB* is (-1,5) and the coordinates of point *A* are (-3,2). What are the coordinates of point *B*?
2. In the diagram below, quadrilateral *ABCD* has vertices *A*(-5,1), *B*(6,-1), *C*(3,5), and *D*(-2,7). What are the coordinates of the midpoint of diagonal *AC*?
3. Challenge: In the diagram below of circle *C*, *QR* is a diameter, and *Q*(1,8) and C(3.5,2) are points on a coordinate plane. Find and state the coordinates of point *R*.

Unit 1 Lesson 7: Distance

Aim:

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| **Do Now:** List all of the perfect squares and simplify each radical: |

How do we find distance on the coordinate plane?

Steps

1. Label Points
2. Plug points into formula
3. Simplify: Put in calculator or simplify the radical

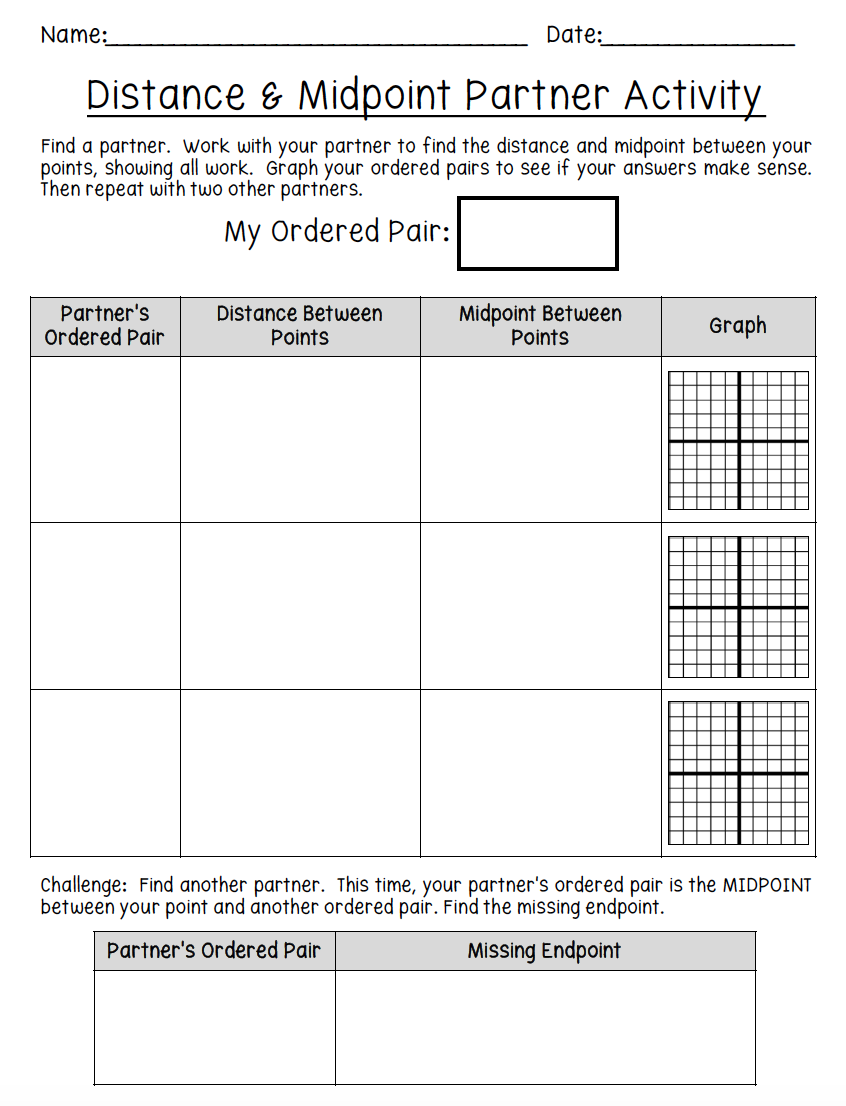
When should I use the distance formula? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Let’s try:** Find the length of the line above.

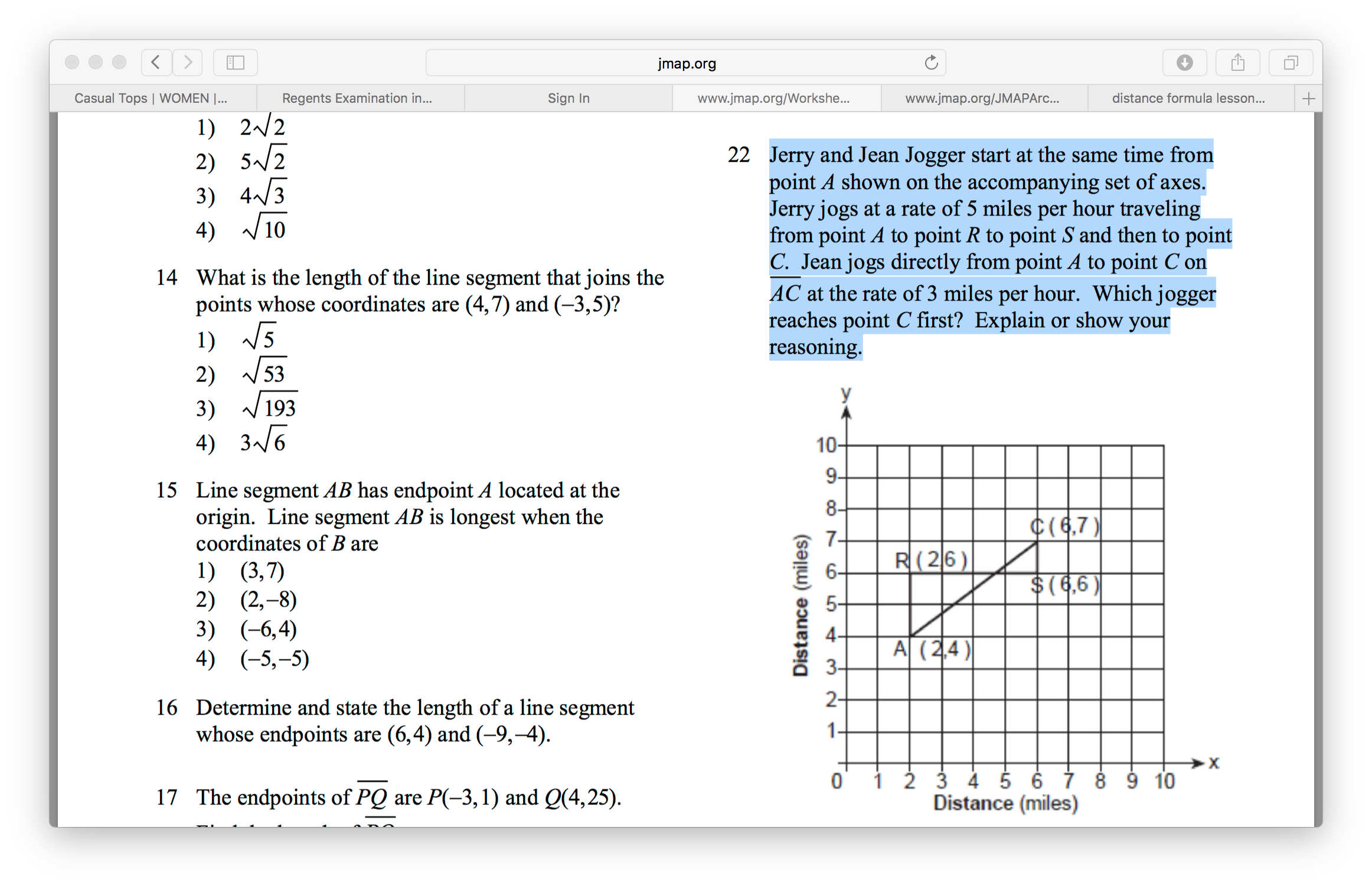
Round to the nearest tenth Leave in simplest Radical Form

What do you notice about the two answers?

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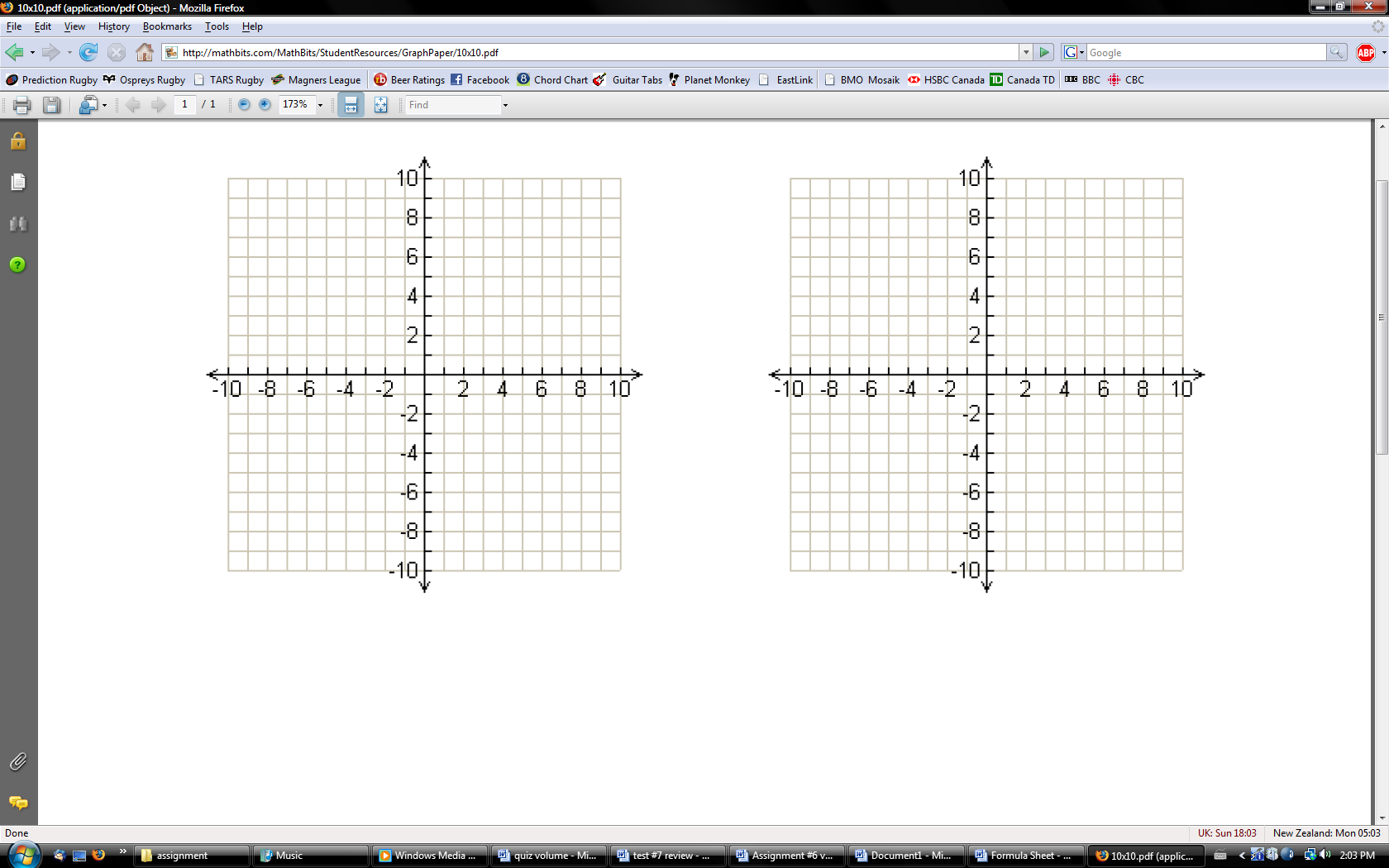
**Lesson 7: Homework**

1. What is the length of the line segment that joins the points whose coordinates are (4,7) and (-3,5)? Round your answer to the nearest tenth.
2. What is the distance from point A(4,2) and point B(10, -4) on the coordinate plane? Leave your answer in simplest radical form.
3. Line segment *AB* has endpoint *A* located at the origin. Line segment *AB* is longest when the coordinates of *B* are… (SHOW ALL WORK)
4. (3, 7) b) (2, -8) c) (-6, 4) d) (-5, -5)
5. Jerry and Jean Jogger start at the same time from point *A* shown on the accompanying set of axes. Jerry travels from point *A* to point *R* to point *S* and then to point *C*. Jean jogs from point A to point C. If both joggers are going at the same speed, which jogger reaches point *C* first? Justify your reasoning.
6. The coordinates of the endpoints of *FG* are (-4,3) and (2,5). Find the length of *FG* in simplest radical form.

**Putting it All Together:**

**Do Now: Lesson 8**

Triangle ABC has coordinates A (3, 9), B (5,1) and C (9, 5). **D is the midpoint of AB** and **E is the midpoint of AC**.

* 1. Graph the points A, B, and C (make sure you label them). Find the coordinates of points D and E. Show all work.

D =

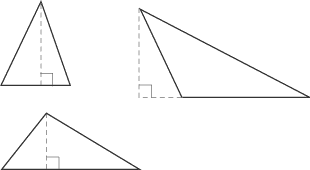
E =

* 1. Plot points D and point E on the graph and label.
  2. Find the **length of BC**. Show all work.
  3. Find the **length of DE**. Show all work.

* 1. What is the **relationship** between AC and DE?

Lesson 8: Practice Area and Perimeter in the coordinate plane.

Aim:



Triangle

Perimeter =

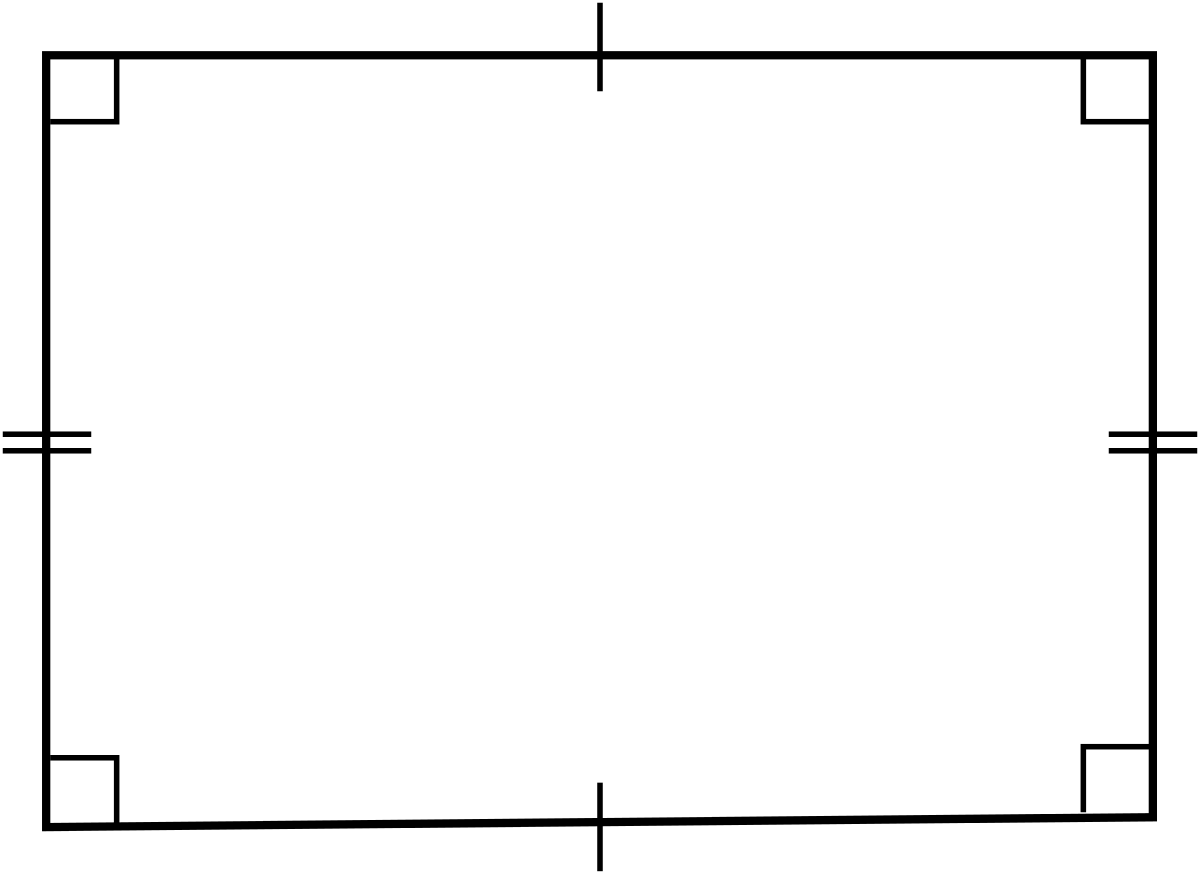
Area =



Square

Perimeter =

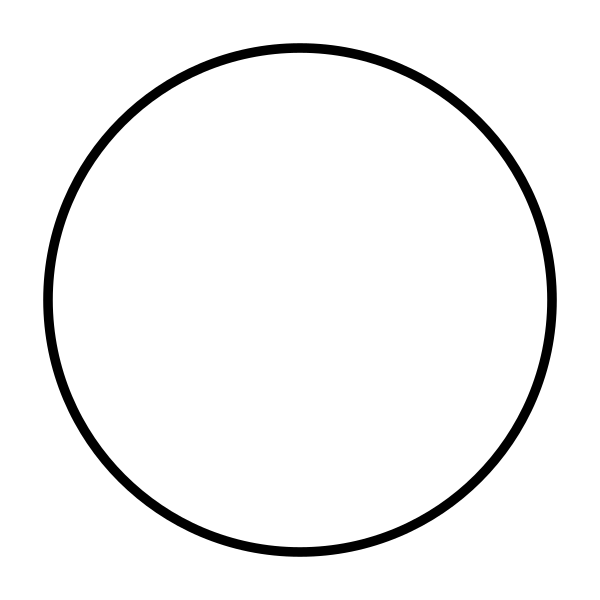
Area =



Rectangle

Perimeter =

Area =



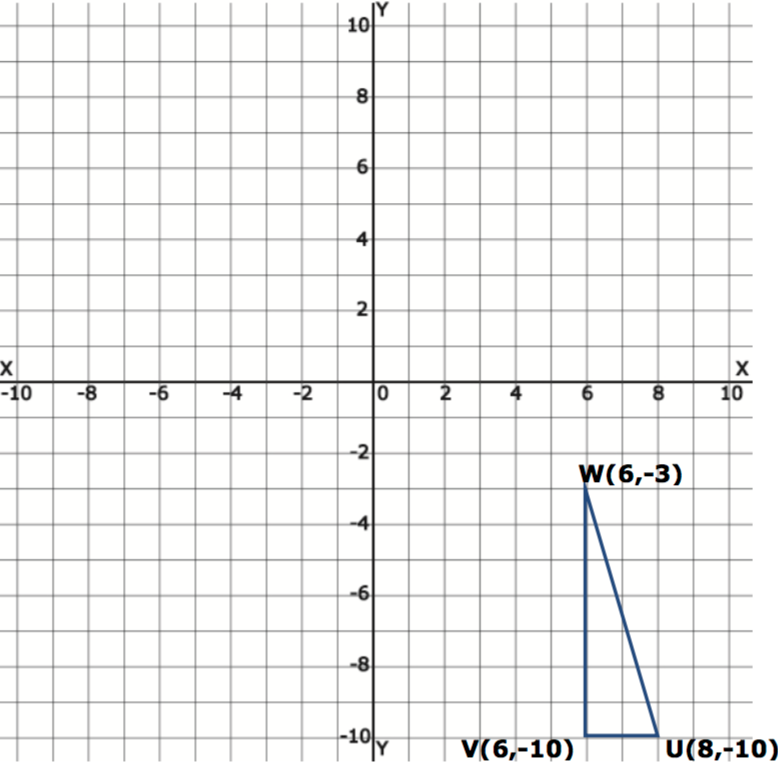
Circle

Circumference =

Area =

Take out your white boards and work with your trio

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Coordinate Geometry: Area and perimeter on the coordinate Plane

**Finding the Perimeter:**

Step 1: Identify the coordinates of each point.

Step 2: Find the length of each side

Step 3: Plug the values into the perimeter formula

**Finding the Area:**

Step 1: Identify the coordinates of each point.

Step 2: Find the base

Step 3: Find the height

Step 4: Plug the values into the area formula

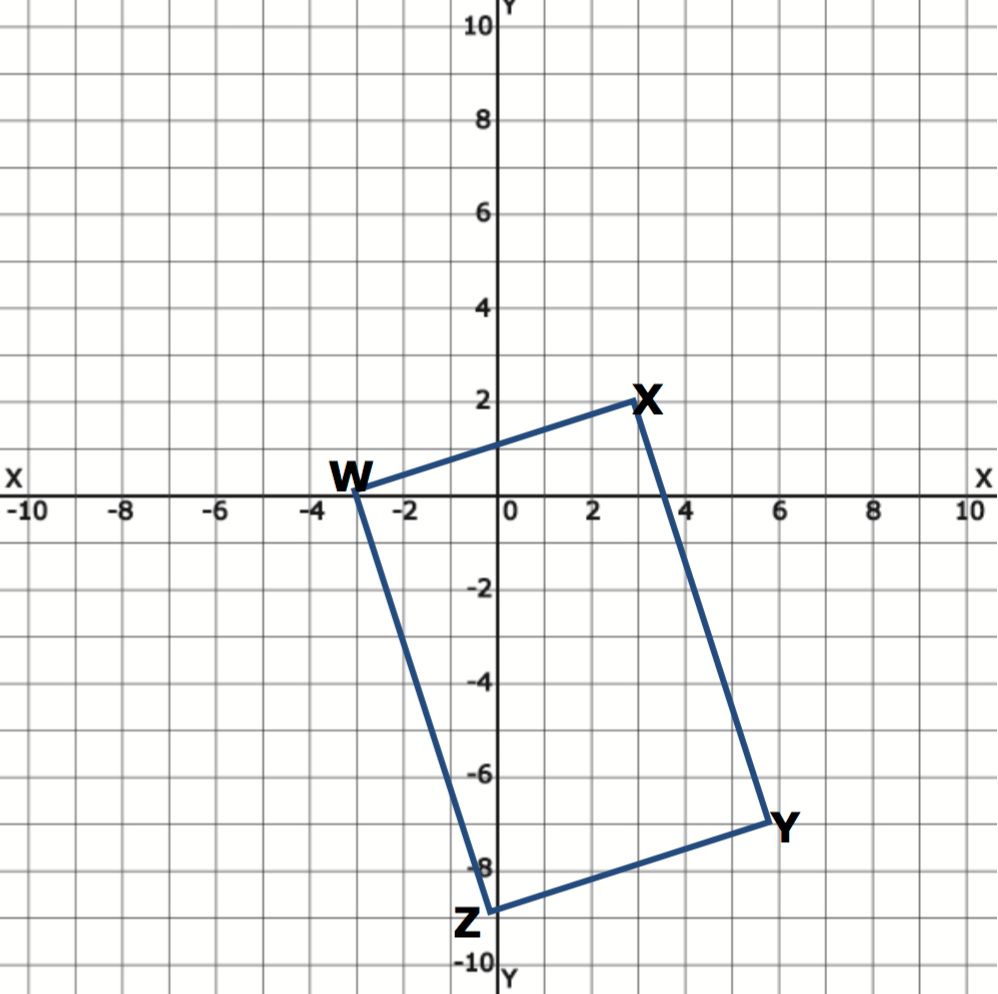
TRIANGLE

 **Finding the Area: Finding the Perimeter:**

TRIANGLE

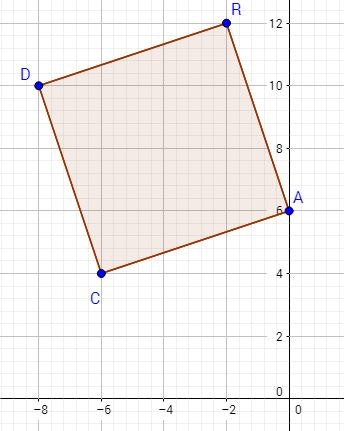
**Finding the Area: Finding the Perimeter:**

Rectangle

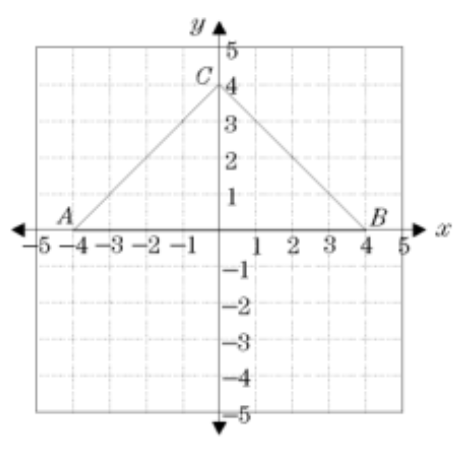
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Square

**Finding the Area: Finding the Perimeter:**



Unit 1: lesson 8: Homework

1. Triangle ABC has coordinates A(-6, 2), B(-3, 6) and C(5, 0). Find the perimeter of the triangle. Leave answer in simplest radical form.
2. What is the area triangle ABC?
3. Find the area of square ABCD with vertices A(-1, 2), B(3, 2), C(-3, -2) and D( -1, -2).
4. Square ABCD has vertices A(-2, -3), B(4, -1), C(2, 5) and D(-4, 3). What is the area of the square?

Lesson 9: Guided notes: Partitioning a line Segment

Aim:

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| **Question:** Directed line segment *PT* has endpoints whose coordinates are *P*(-2,1) and *T*(4,7). Determine the coordinates of point *J* that divides the segment in the ratio 2:1.  **Brainstorm with your groups:**  What is the question asking and how can I solve the problem?  Steps to solve graphically:         **Or use the formula below:**  **where k is the ratio written as numerator/(numerator + denominator)** |

Lesson 9: Classwork

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| Directions: In your group, answer your given question on a separate sheet of paper. Show all work and be prepared to share your solving strategy with the class.  HW: all questions should be completed on graph paper for HW/CW |

1. **Group 1**: What are the coordinates of the point on the directed line segment from *K*(-5,-4) to *L*(5,1) that partitions the segment into a ratio of 3 to 2?  
   1 (-3,-3)
2. **Group 2:** Directed line segment *PT* has endpoints whose coordinates are *P*(-2,1) and *T*(4,7). Determine the coordinates of point *J* that divides the segment in the ratio 2 to 1.
3. **Group 3**: Point *P* is on segment *AB* such that *AP*: *PB* is 4:5. If *A* has coordinates (4,2), and *B* has coordinates (22,2), determine and state the coordinates of *P*.
4. **Group 4:** The coordinates of the endpoints of *AB* are *A*(-6,-5) and *B*(4,0). Point *P* is on *AB*. Determine and state the coordinates of point *P*, such that *AP*: *PB* is 2:3.
5. **Group 5:** Point *Q* is on *MN* such that *MQ: QN* is 2:3. If *M* has coordinates (3,5) and *N* has coordinates (8,-5), the coordinates of *Q* are

1. **Group 6:** Point *P* is on the directed line segment from point *X*(-6,-2) to point *Y*(6,7) and divides the segment in the ratio 1:5. What are the coordinates of point *P* ?