Warm-Up

1. Take out your HW & calendar to be checked!

2. Complete EOC Review #6 iRespond

1. What is the geometric term for fixed distance from the center of a circle to a point on the circle?

    A. Chord   C. Radius
    B. Diameter   D. Tangent

$$(x+4, y+8)$$

2. A triangle with vertices A(-1, 4), B(-2, -1), and C(3, -1) is transformed to a triangle with vertices A'(3, 12), B'(2, -3), and C'(7, -3). Which statement is **TRUE**?

    A. The triangles are congruent.   C. The triangle has been stretched horizontally.
    B. The triangles are similar.   D. The triangle has been stretched vertically.

Scale factor?   *multiplied?*

3. Two shapes "coincide" if one shape can be laid on top of the other and there is an exact match between their points.

Rotational Symmetry

Consider these four shapes:
I. Circle
II. Regular hexagon
III. Regular octagon
IV. Square

$$\frac{360°}{45°} = 8 \text{ sides}$$

$$\frac{360°}{6} = 60° \; X$$

$$\frac{360°}{8} = 45°$$

Which of these shapes will coincide with itself if rotated by 45 degrees?
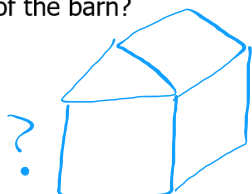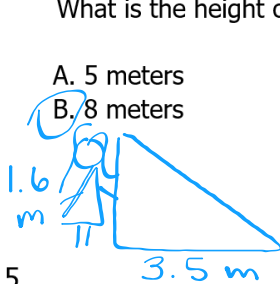
A. I and II
B. II and IV

C. I and III
D. III and IV

4. Heather is 1.6 meters tall and casts a shadow of 3.5 meters. A barn nearby casts a shadow of 17.5 meters. What is the height of the barn?

A. 5 meters
B. 8 meters

C. 14 meters
D. 38 meters

1.6 m

3.5 m

17.5 m

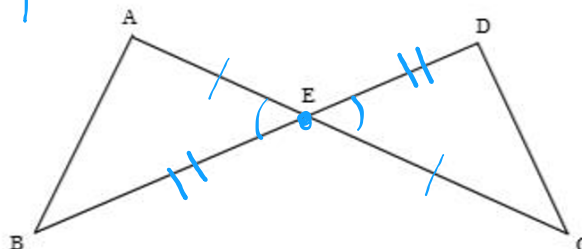$$\frac{1.6}{X} = \frac{3.5}{17.5}$$

$$3.5X = 28$$

$$X = 8 \text{ m}$$

5. Point E is the midpoint of line segments AC and BD.

Which is the **TRUE** statement?

A. $\triangle ABE \cong \triangle CDE$ by ASA

B. $\triangle ABE \cong \triangle CDE$ by AAS

C. $\triangle ABE \cong \triangle CDE$ by SAS

D. $\triangle ABE \cong \triangle CDE$ by SSS

Review HW

Skills Check

1. There is **NO communication/eye contact** during a quiz to anyone!

2. When you are DONE, **raise your quiz in the air**.

`0:00:00`

What am I learning today?

Learning Objective 5.2

How to use the midpoint formula.

Midpoint – The point ___halfway___ between two points.

1st point (x_1, y_1) 2nd point (x_2, y_2)

FORMULA: $\left(\dfrac{x_1 + x_2}{2} , \dfrac{y_1 + y_2}{2} \right)$

1. Find the midpoint between (0, 4) and (-6, 2).

$$mp = \left(\frac{0 + (-6)}{2}, \frac{4 + 2}{2} \right)$$
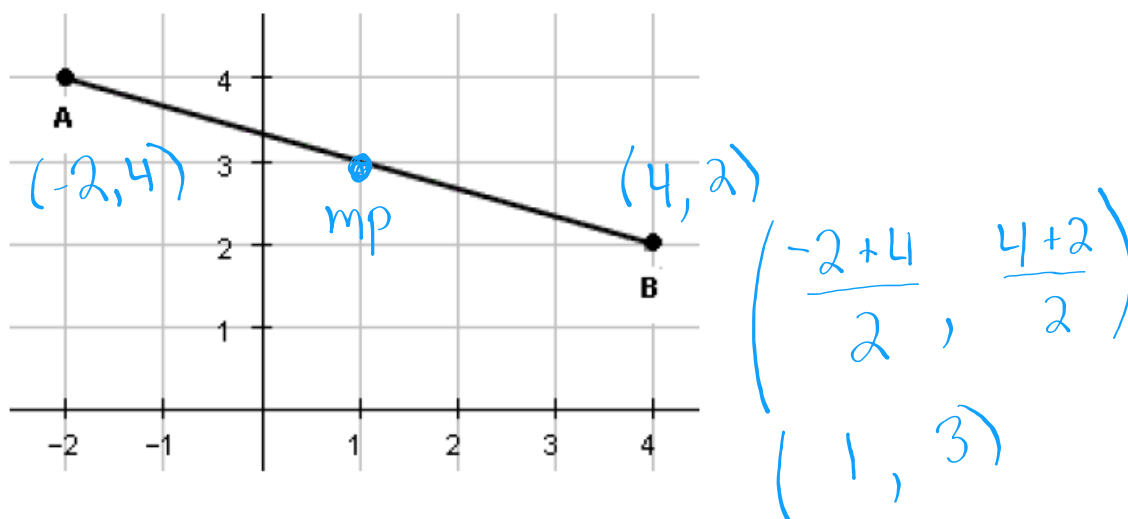
$$(-3, 3)$$

2. Find the midpoint between (-3, -5) and (-2, -8).

$$mp = \left(\frac{-3 + (-2)}{2}, \frac{(-5) + (-8)}{2} \right)$$

$$\left(\frac{-5}{2}, \frac{-13}{2} \right) \Rightarrow (-2.5, -6.5)$$

3. Find the midpoint.

A (-2, 4)

mp

(4, 2)

B

$$\left(\frac{-2 + 4}{2}, \frac{4 + 2}{2} \right)$$

$$(1, 3)$$

5

4. Find the other endpoint of the segment AB if A(3, 5) and the midpoint is (8, 0).

$$2 \cdot 8 = \frac{3+x}{2} \cdot 2$$
$$16 = 3 + x$$
$$13 = x$$

$$2 \cdot 0 = \frac{5+y}{2} \cdot 2$$
$$0 = 5 + y$$
$$-5 = y$$

$(13, -5)$

5. Find the other endpoint of the segment CD if D(-3, -5) and M$(-\frac{3}{2}, 6)$.

$$\frac{-3}{2} \neq \frac{-3+x}{2}$$

$$-6 = -6 + 2x$$
$$+6 \quad +6$$
$$\frac{0}{2} = \frac{2x}{2}$$
$$0 = x$$

$$2 \cdot 6 = \frac{-5+y}{2} \cdot 2$$
$$12 = -5 + y$$
$$17 = y$$

$(0, 17)$

What am I learning today?

Learning Objective 5.3

How to partition a line segment.

Partitioning – Calculating a point somewhere in between two points that
___splits___ a line segment into a proportion.

1st point (x_1, y_1) 2nd point (x_2, y_2)

FORMULA:

$$P = \left(x_1 + \frac{a}{a+b}(x_2 - x_1), \; y_1 + \frac{a}{a+b}(y_2 - y_1) \right)$$

ratio/fraction

1. Given the points A(3, 4) and B(8, 10), find the coordinates of point P
   on the segment AB that partitions AB in the ratio 1:2.

$$P = \left(3 + \frac{1}{3}(8-3), \; 4 + \frac{1}{3}(10-4) \right)$$

1st pt.   a   b

$$P = \left(\frac{14}{3}, \; 6 \right)$$

2. Given the points A(3, 4) and B(8, 10), find the coordinates of point P
   on the segment BA that partitions BA in the ratio 1:2.

1st point

$$P = \left(8 + \frac{1}{3}(3-8), \; 10 + \frac{1}{3}(4-10) \right)$$

$$= \left(\frac{19}{3}, \; 8 \right)$$

3. Given the points A(-3, 5) and B(-8, 7), find the coordinates of point P on the segment AB that partitions AB so that P is $\frac{4}{5}$ away from A.
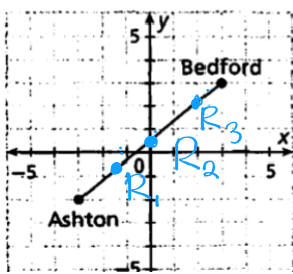
1st pt.

$$P = \left(-3 + \frac{4}{5}(-8 - (-3)), \; 5 + \frac{4}{5}(7 - 5) \right)$$

$$= \left(-7, \; \frac{33}{5} \right)$$

Same - start & end

4. The map shows a straight highway between two towns. A highway planner wants to put three new rest stops between the towns so that it divides the highway into 4 equal parts. Find the coordinates of the rest stops.

A(-3, -2)

B(3, 3)

$$R_1 = \left(-3 + \frac{1}{4}(3 - (-3)), \; -2 + \frac{1}{4}(3 - (-2)) \right)$$

$$= \left(\frac{-3}{2}, \; \frac{-3}{4} \right)$$

$$R_2 = \left(-3 + \frac{2}{4}(3 - (-3)), \; -2 + \frac{2}{4}(3 - (-2)) \right)$$

$$= \left(0, \; \frac{1}{2} \right)$$

$$R_3 = \left(-3 + \frac{3}{4}(3 - (-3)), \; -2 + \frac{3}{4}(3 - (-2)) \right)$$

$$= \left(\frac{3}{2}, \; \frac{7}{4} \right)$$

Classwork:

Complete the classwork about midpoint and partitioning. SHOW ALL WORK!

HW: Finish packet.