BECA / Dr. Huson / Geometry   1
Unit 7: Similarity   Name:
2 January 2020

7.2 Do Now: Linear graphs, isosceles triangles, dilations

1. (a) Graph and label the two equations. Mark their intersection as an ordered pair.

$$y = \tfrac{2}{3}x - 4 \qquad\qquad\qquad\qquad 4x + 3y = 6 \qquad\qquad\text{(4 pts)}$$

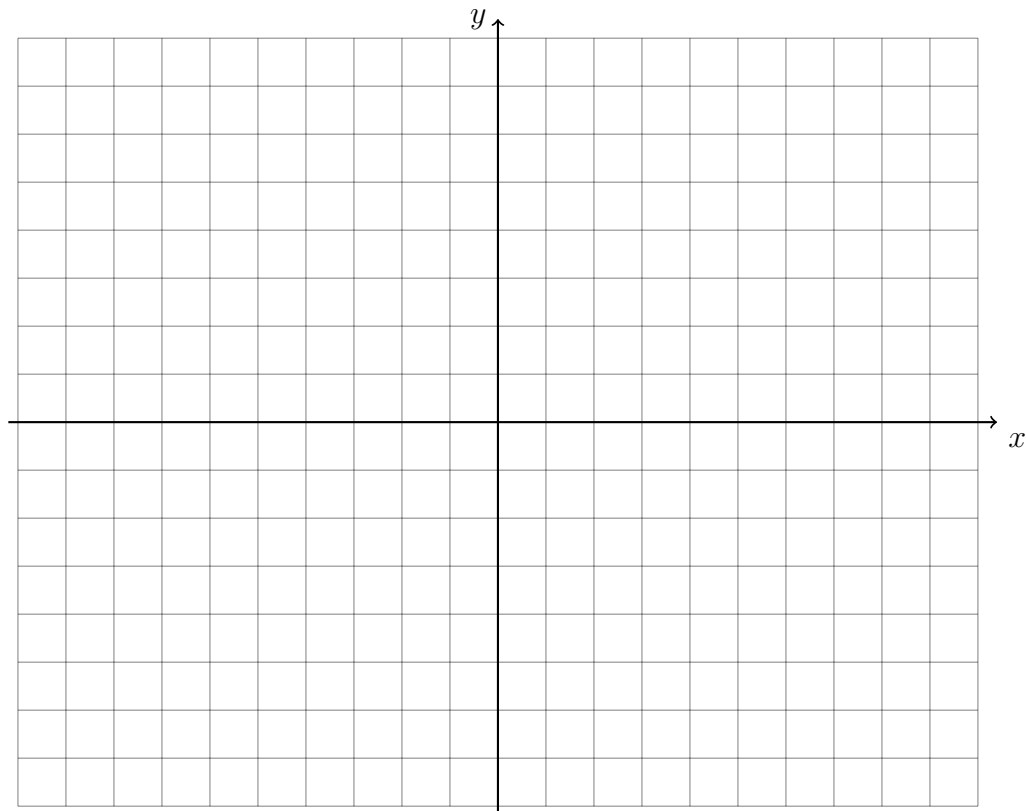(b) Find the slopes of the two lines. (2 points)

$$m_1 = \qquad\qquad\qquad\qquad m_2 =$$

(c) Why is it incorrect to write $m_1 = \tfrac{2}{3}x$? (1 point)

(d) Are the lines parallel, perpendicular, or neither? Justify your answer with an equation or inequality using the slopes. (2 points)

2. Given isosceles $\triangle ABC$ with $\overline{AB} \cong \overline{BC}$.   (*the diagram is not to scale*)

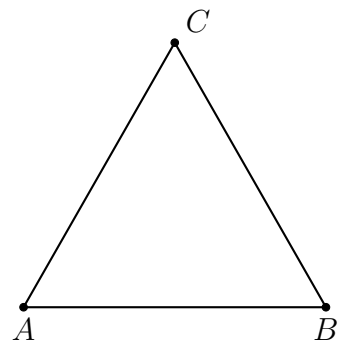   (a) Mark the congruent sides & angles of $\triangle ABC$.

      Circle True or False:

   (b) True   False $\angle A \cong \angle B$

   (c) True   False $\angle A \cong \angle C$

   (d) True   False $\angle B \cong \angle C$

   (e) T   F $m\angle A + m\angle B + m\angle C = 180$

3. Given isosceles $\triangle RSU$ with $\overline{RS} \cong \overline{RU}$.   (*the diagram is not to scale*)

   (a) Mark the congruent sides & angles of $\triangle RSU$.
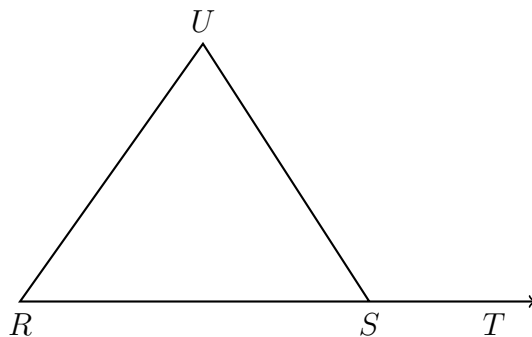
      Circle True or False:

   (b) True   False $\angle R \cong \angle RSU$

   (c) True   False $\angle R \cong \angle U$

   (d) True   False $\angle RSU \cong \angle U$

   (e) True   False $\angle R \cong \angle TSU$

   (f) True   False $\angle RSU \cong \angle TSU$

   (g) True   False $m\angle RSU + m\angle TSU = 180$

   (h) True   False $m\angle R + m\angle RSU + m\angle U = 180$

4. Given $\triangle ABC$ is isosceles but not equilateral with $\angle B \cong \angle C$.   (*not draw to scale*)
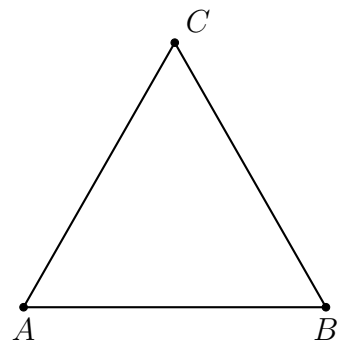
   (a) Mark the congruent sides & angles of $\triangle ABC$.

      Circle True or False:

   (b) True   False $\overline{AB} \cong \overline{BC}$

   (c) True   False $\overline{AB} \cong \overline{AC}$

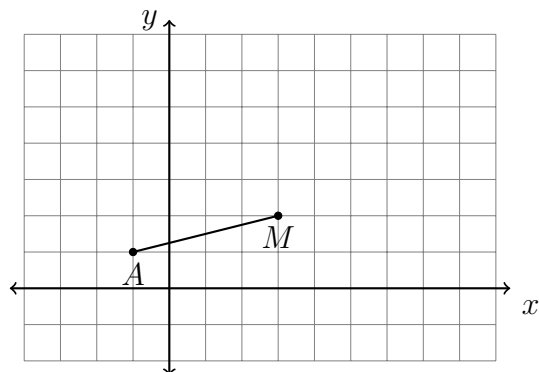   (d) True   False $\overline{BC} \cong \overline{AC}$

5. $A(-1,1)$ is one endpoint of $\overline{AB}$. The segment's midpoint is $M(3,2)$, as shown below.

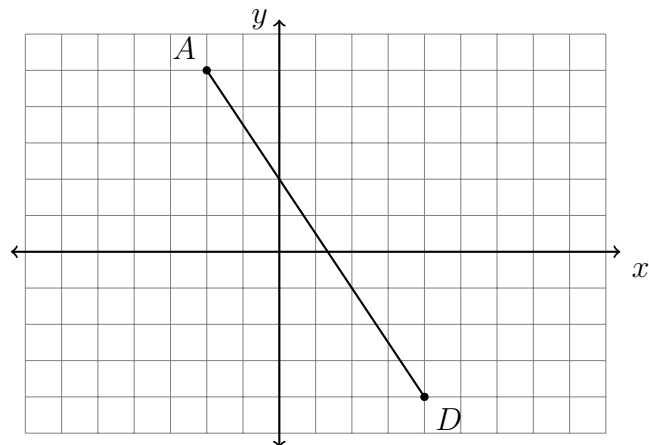   (a) What translation maps

      $A(-1,1) \rightarrow M(3,2)$?

   (b) Find the other endpoint, B.

6. In the diagram below, $\overline{AD}$ has endpoints with coordinates $A(-2,5)$ and $D(4,-4)$. What points B and C trisect $\overline{AD}$ into three congruent segments? Mark and label them on the graph. State their coordinates.

7. A dilation centered at A maps $\triangle ABC \to \triangle ADE$. Given the sides of the preimage, $AC = 6$, $BC = 4$, $AB = 8$, and of $DE = 12$ find the scale factor k and the lengths AD and AE. Then find CE and BD.
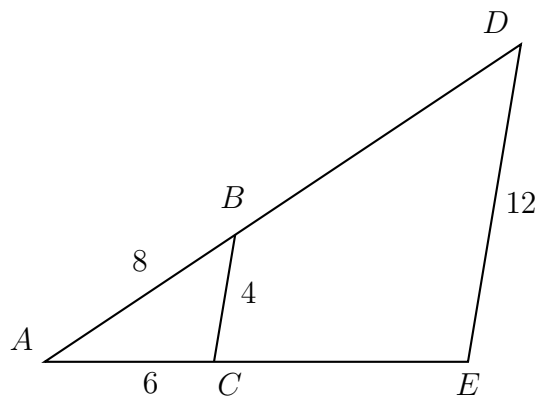
(a) $k =$

(b) $AD =$

(c) $AE =$

(d) $CE =$

(e) $BD =$

8. Given $\triangle ABP \sim \triangle JKP$ as shown below. $AB = 9.6$, $AP = 12.0$, $BP = 6.3$, and $KP = 12.6$. Find JK.