

3 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.

$$y = -\frac{3}{2}x - 7$$

$$2x - 3y = -18$$

(4 pts)

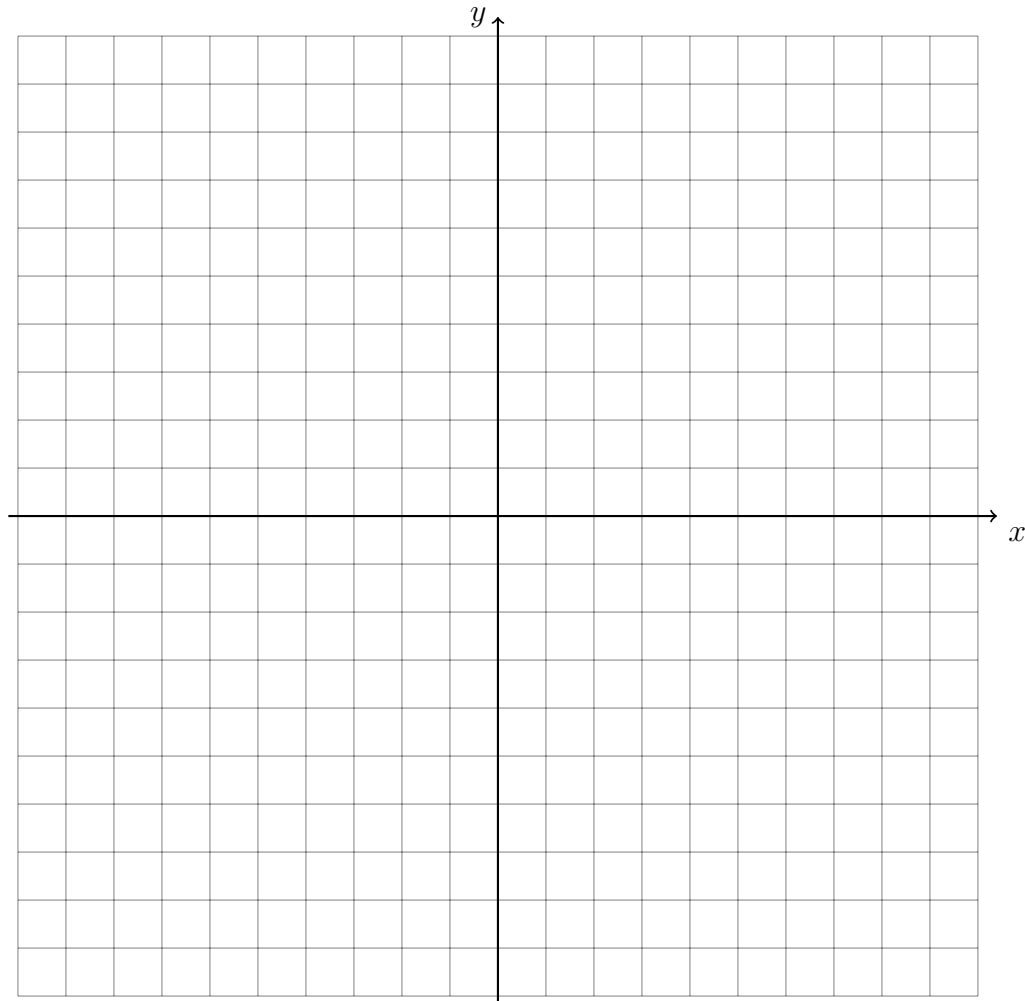
- (b) Find the slopes of the two lines.

(2 points)

$$m_1 =$$

$$m_2 =$$

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



2. A dilation centered at  $A$  maps  $\triangle ABC \rightarrow \triangle ADE$ . Given the sides of the preimage,  $AC = 6$ ,  $BC = 4$ ,  $AB = 8$ , and of  $DE = 14$  find the scale factor  $k$  and the lengths  $AD$  and  $AE$ . Then find  $CE$  and  $BD$ .

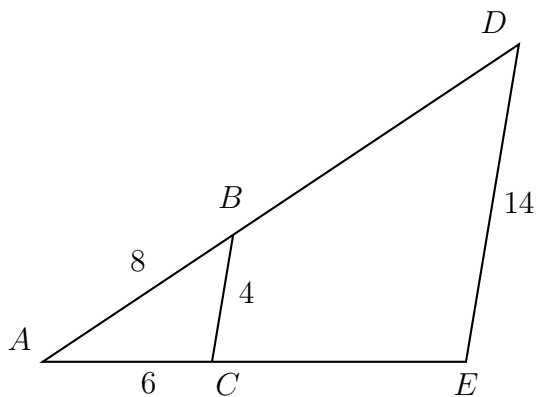
(a)  $k =$

(b)  $AD =$

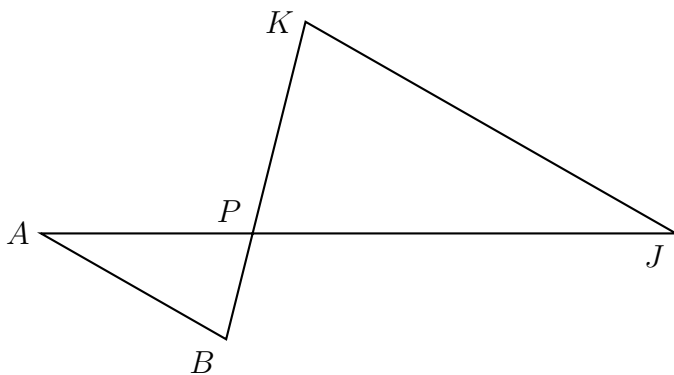
(c)  $AE =$

(d)  $CE =$

(e)  $BD =$



3. Given  $\triangle ABP \sim \triangle JKP$  as shown below.  $AB = 5.7$ ,  $AP = 7.4$ ,  $BP = 3.6$ , and  $KP = 9.0$ . Find  $JK$ .

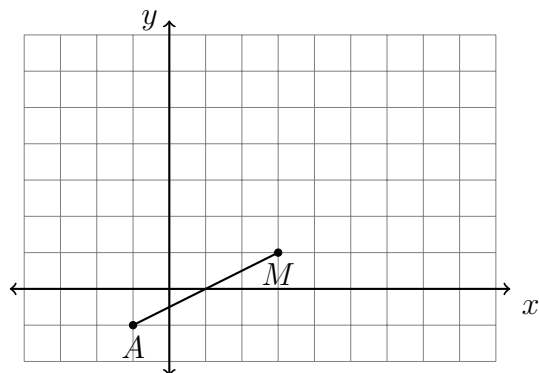


4.  $A(-1, -1)$  is one endpoint of  $\overline{AB}$ . The segment's midpoint is  $M(3, 1)$ , as shown below.

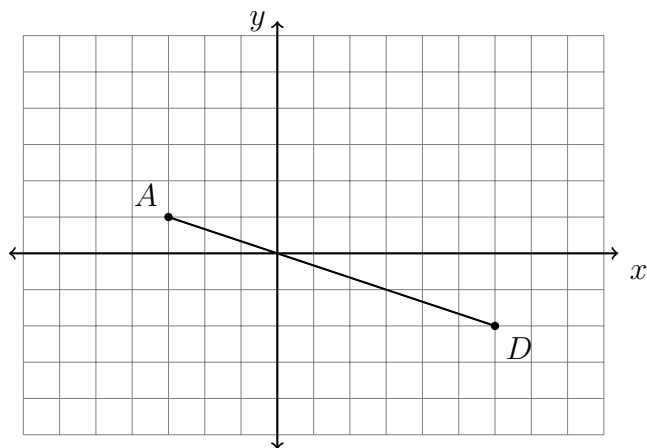
(a) What translation maps

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

(b) Find the other endpoint,  $B$ .



5. In the diagram below,  $\overline{AD}$  has endpoints with coordinates  $A(-3, 1)$  and  $D(6, -2)$ . What points  $B$  and  $C$  trisect  $\overline{AD}$  into three congruent segments? Mark and label them on the graph. State their coordinates.



6. Given  $\triangle ABC$  is isosceles but not equilateral with  $\angle A \cong \angle C$ . (not draw to scale)

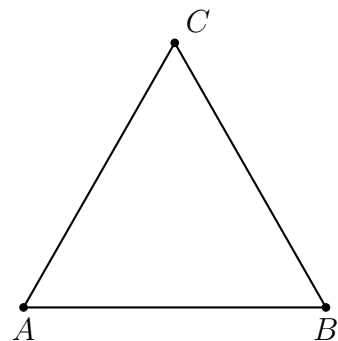
(a) Mark the congruent sides & angles of  $\triangle ABC$ .

Circle True or False:

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

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

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



7. Given isosceles  $\triangle ABC$  with  $\overline{AB} \cong \overline{AC}$ .

(the diagram is not to scale)

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

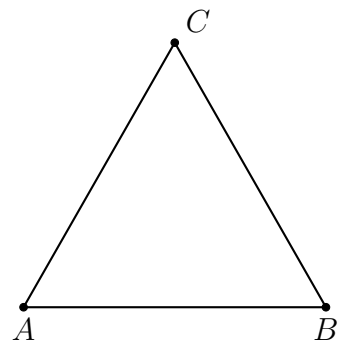
Circle True or False:

- (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     $m\angle A + m\angle B + m\angle C = 180$



8. Given isosceles  $\triangle RSU$  with  $\overline{RS} \cong \overline{SU}$ .

(the diagram is not to scale)

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

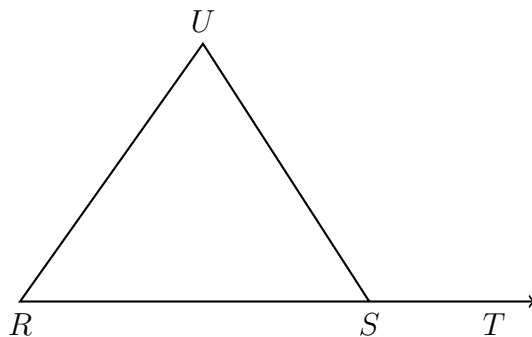
Circle True or False:

- (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     $m\angle R + m\angle RSU + m\angle U = 180$

Name:

## 7.2 Spicy: Similar triangles, dilations

9. The diagram below shows  $\triangle ABC \sim \triangle ADE$ , with  $\overline{AEB}$ ,  $\overline{ADC}$ , and  $\angle ACB \cong \angle AED$ .  
 $AB = 8$ ,  $AD = 4$ , and  $DE = 2$ .

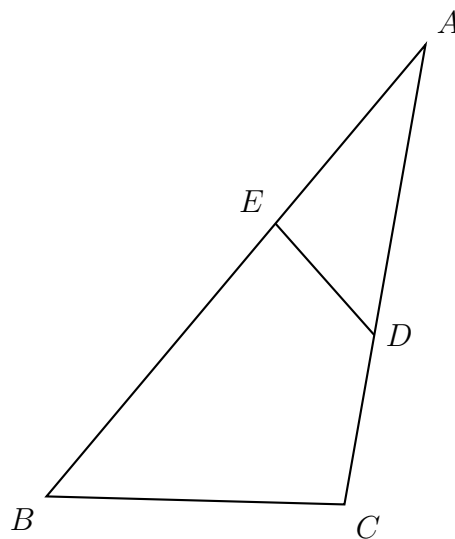
(a)  $\triangle ADE \rightarrow$  \_\_\_\_\_

(b)  $\overline{AD} \rightarrow$  \_\_\_\_\_

(c) What is the scale factor?

$k =$  \_\_\_\_\_

(d) What is the length of  $\overline{BC}$ ?



10. Given  $\triangle ABC \sim \triangle ADE$  with sides  $AC = 9$ ,  $BC = 6$ ,  $AB = 12$ , and of  $DE = 10$  find the scale factor  $k$  and the lengths  $AD$  and  $AE$ . Then find  $CD$ .

(a)  $k =$

(b)  $AD =$

(c)  $AE =$

(d)  $CD =$

