

Name: \_\_\_\_\_

**GEOMETRY**  
**MIDTERM REVIEW**  
**HOMEWORK PACKET**

The homework for each night from this packet is mixed review of all material we have covered so far this year. Show all work! Use old notes, videos and study sheets to help you! You will need a compass, ruler and graphing calculator!

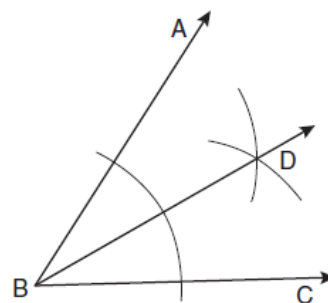
**CALENDAR**

<b>DATE</b>	<b>ASSIGNMENT</b>	<b>PAGES</b>
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1/16/20	Midterm Review HW #2	5-6
1/17/20	Midterm Review HW #3	7-8

### Midterm Review HW #1

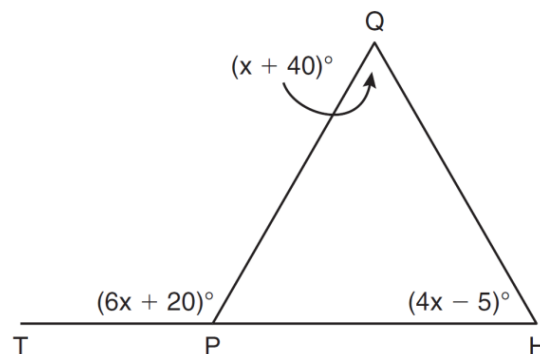
1. Based on the construction below, which statement must be true?

- 1)  $m\angle ABD = \frac{1}{2} m\angle CBD$
- 2)  $m\angle ABD = m\angle CBD$
- 3)  $m\angle ABD = m\angle ABC$
- 4)  $m\angle CBD = \frac{1}{2} m\angle ABD$



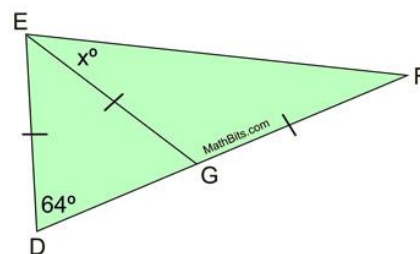
2. In the diagram below of  $\triangle HQP$ , side  $\overline{HP}$  is extended through  $P$  to  $T$ ,  $m\angle QPT = 6x + 20$ ,  $m\angle HQP = x + 40$ , and  $m\angle PHQ = 4x - 5$ .

- a. Find  $m\angle QPT$
- b. Find  $m\angle HQP$
- c. Find  $m\angle QPH$



(Not drawn to scale)

3.  $\triangle DEG$  and  $\triangle EGF$  are isosceles.  $m\angle EDG = 64^\circ$  Find  $m\angle GEF$ .



4. Which transformation would result in the perimeter of a triangle being different from the perimeter of its image?

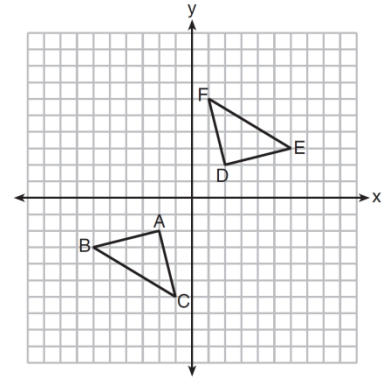
- 1)  $(x, y) \rightarrow (y, x)$
- 2)  $(x, y) \rightarrow (x, -y)$
- 3)  $(x, y) \rightarrow (4x, 4y)$
- 4)  $(x, y) \rightarrow (x + 2, y - 5)$

5. Segment  $WX$  is the perpendicular bisector of  $YZ$  at  $E$ . Which pair of segments do *not* have to be congruent?

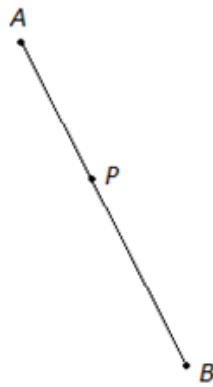
- |                                       |                                       |
|---------------------------------------|---------------------------------------|
| (1) $\overline{XE}$ , $\overline{WE}$ | (3) $\overline{YW}$ , $\overline{ZW}$ |
| (2) $\overline{YE}$ , $\overline{ZE}$ | (4) $\overline{YX}$ , $\overline{ZX}$ |

6. Triangle  $ABC$  and triangle  $DEF$  are graphed on the set of axes below. Which sequence of transformations maps triangle  $ABC$  onto triangle  $DEF$ ?

- 1) a reflection over the  $x$ -axis followed by a reflection over the  $y$ -axis
- 2) a  $180^\circ$  rotation about the origin followed by a reflection over the line  $y = x$
- 3) a  $90^\circ$  clockwise rotation about the origin followed by a reflection over the  $y$ -axis
- 4) a translation 8 units to the right and 1 unit up followed by a  $90^\circ$  counterclockwise rotation about the origin



7. Construct a **line perpendicular** to segment  $AB$  that goes through point  $P$ .

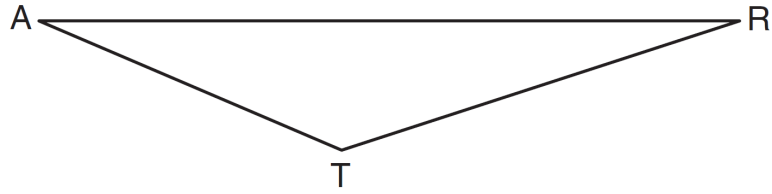


8. Construct a **perpendicular bisector** to a line  $\ell$  from a point  $A$  not on  $\ell$ .

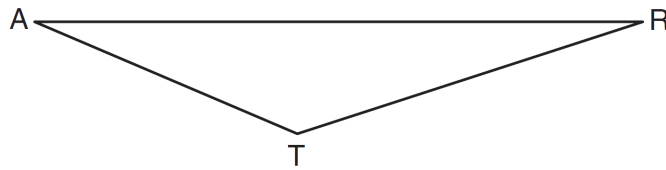
$A$ .



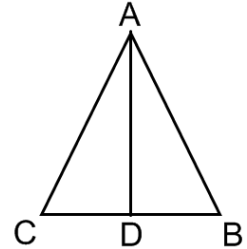
9. Given:  $\triangle ART$ , Using a compass and straightedge, construct the bisector of  $\angle RAT$ . [Leave all construction marks.]



10. Given:  $\triangle ART$ , Construct: the perpendicular bisector of side  $\overline{AR}$  [Leave all construction marks.]



11. Given:  $\overline{AD} \perp \overline{BC}$  and  $\overline{AD}$  bisects  $\angle BAC$   
 Prove:  $\angle C \cong \angle B$

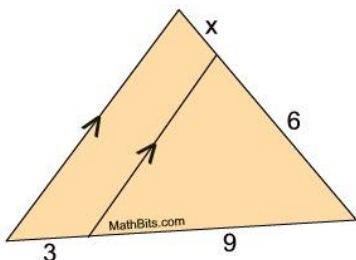


STATEMENT

REASON

## Midterm Review HW #2

12. Given the diagram below, determine the value of  $x$ .



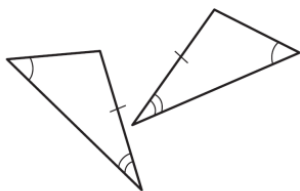
13. If  $\triangle ABC \sim \triangle LMN$ , which statement is *not* always true?

- 1)  $m\angle A \cong m\angle N$
- 2)  $m\angle B \cong m\angle M$
- 3)  $\frac{\text{area of } \triangle ABC}{\text{area of } \triangle LMN} = \frac{(AC)^2}{(LN)^2}$
- 4)  $\frac{\text{perimeter of } \triangle ABC}{\text{perimeter of } \triangle LMN} = \frac{AB}{LM}$

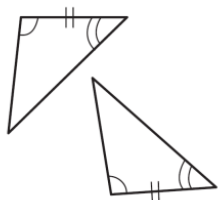
14. In the diagram below, four pairs of triangles are shown. Congruent corresponding parts are labeled in each pair. Using only the information given in the diagrams, which pair of triangles can *not* be proven congruent?



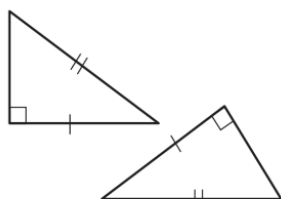
A



C



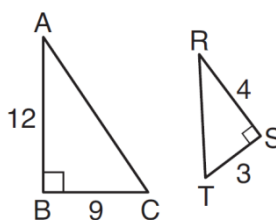
B



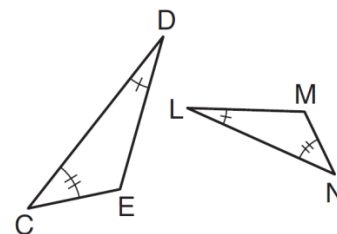
D

15. Using the information given below, which set of triangles can *not* be proven similar?

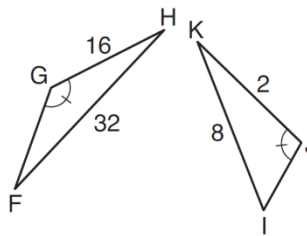
A.



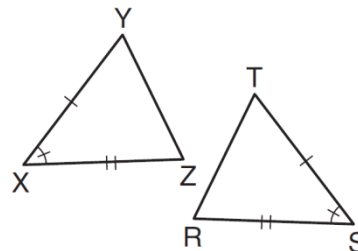
B.



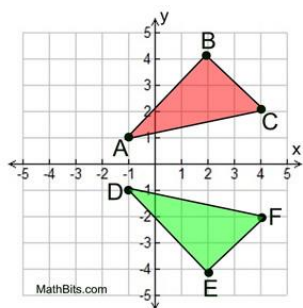
C.



D.



16. Which rigid motion will verify that  $\triangle ABC$  is congruent to  $\triangle DEF$  as shown at the below?



17.

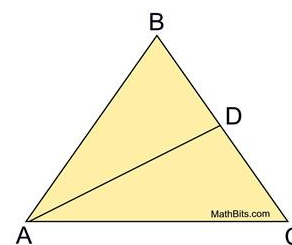
Given:  $\overline{AD}$  bisects  $\angle BAC$

$\overline{AD} \perp \overline{BC}$

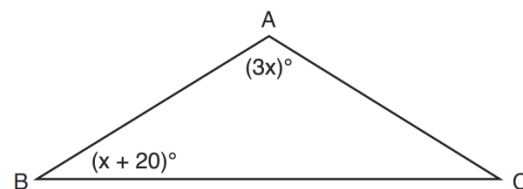
Prove:  $\triangle ADB \cong \triangle ADC$

How would you prove that the triangles are congruent?

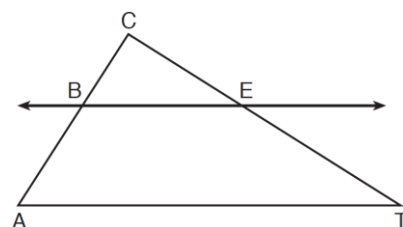
- [1] Side-Angle-Side (SAS)
- [2] Angle-Side-Angle (ASA)
- [3] Side-Side-Side (SSS)
- [4] Angle-Angle-Side (AAS)



18. In the diagram below of  $\triangle ABC$ ,  $\overline{AB} \cong \overline{AC}$ ,  $m\angle A = 3x$ , and  $m\angle B = x + 20$ . What is the value of  $x$ ?



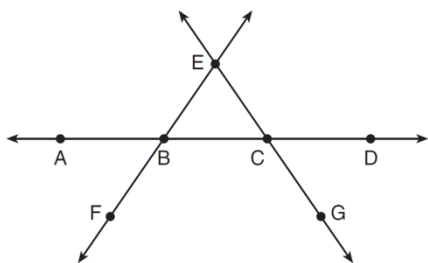
19. In the diagram below of  $\triangle ACT$ ,  $\overleftrightarrow{BE} \parallel \overline{AT}$ . If  $CB = 3$ ,  $CA = 10$ , and  $CE = 6$ , what is the length of  $\overline{ET}$ ?



20. In triangles  $ABC$  and  $DEF$ ,  $AB = 4$ ,  $AC = 5$ ,  $DE = 8$ ,  $DF = 10$ , and  $\angle A \cong \angle D$ . Is  $\triangle ABC \sim \triangle DEF$ ? Explain your answer. If the triangles are similar, write the similarity statement.

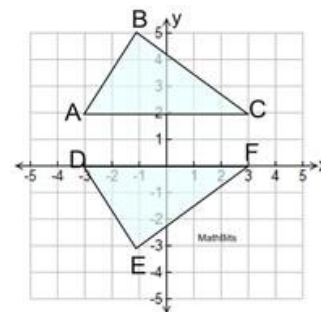
21. In the diagram below,  $\overleftrightarrow{FE}$  bisects  $\overline{AC}$  at  $B$ , and  $\overleftrightarrow{GE}$  bisects  $\overline{BD}$  at  $C$ . Which statement is always true?

- 1)  $\overline{AB} \cong \overline{DC}$
- 2)  $\overline{FB} \cong \overline{EB}$
- 3)  $\overleftrightarrow{BD}$  bisects  $\overline{GE}$  at  $C$ .
- 4)  $\overleftrightarrow{AC}$  bisects  $\overline{FE}$  at  $B$ .



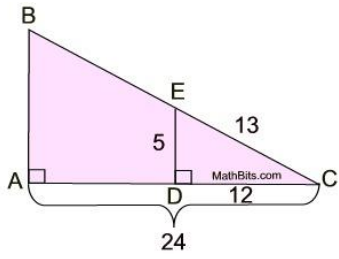
22. Which rigid transformation will verify that  $\triangle ABC$  is congruent to  $\triangle DEF$ , as shown below?

- [1] reflection in the  $y$ -axis
- [2] reflection in the  $x$ -axis
- [3] reflection in the line  $y = 1$
- [4] translation of down two units

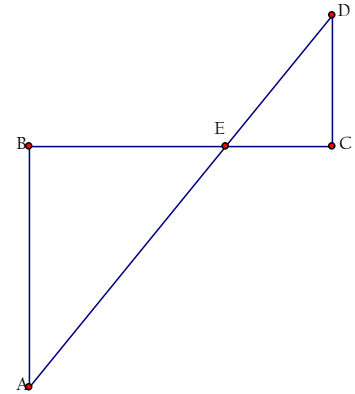


Midterm Review HW #3

23. Given:  $\triangle ABC \sim \triangle DEC$ , determine  $AB$ .



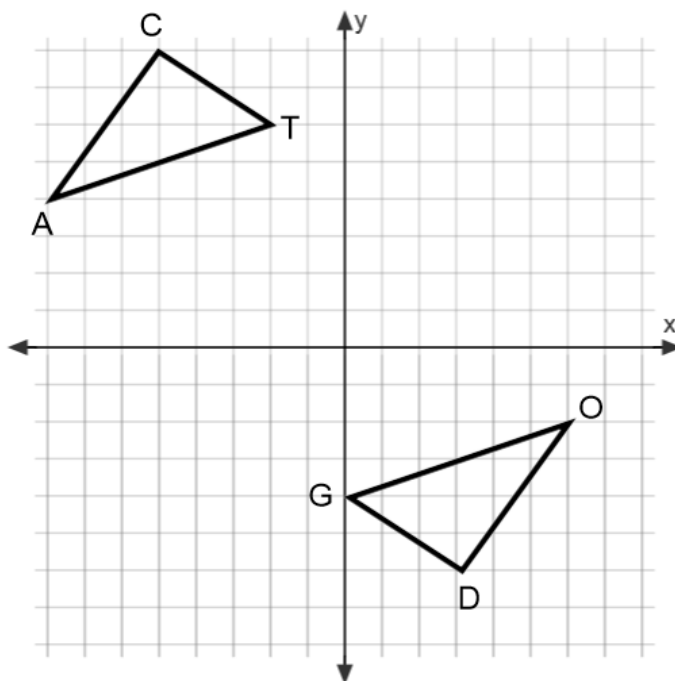
24. Given:  $\overline{DC} \perp \overline{BC}$ ,  $\overline{AB} \perp \overline{BC}$   
 Prove:  $\triangle ABE \sim \triangle DCE$



STATEMENT

REASON

25.  $\triangle CAT$  and its image  $\triangle DOG$ , are graphed on the set of axes shown. Describe a single transformation, or sequence of transformations that map  $\triangle CAT$  onto  $\triangle DOG$ .



26.  $\triangle ABC$  and its image  $\triangle PQR$ , are graphed on the set of axes shown. Describe a single transformation, or sequence of transformations that map  $\triangle ABC$  onto  $\triangle PQR$ .

