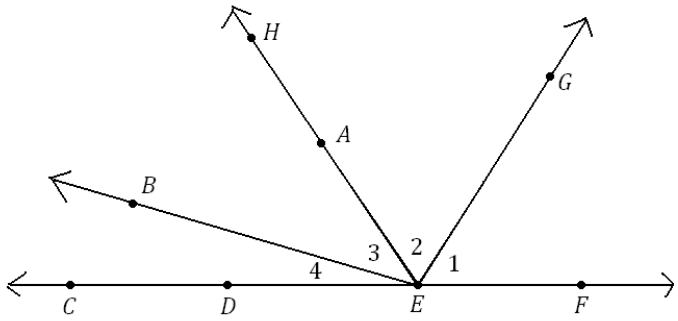
ANSWERS Date _____ Period ___

DIRECTIONS: For #1-4, use the diagram to fill in the blanks with the best answers.



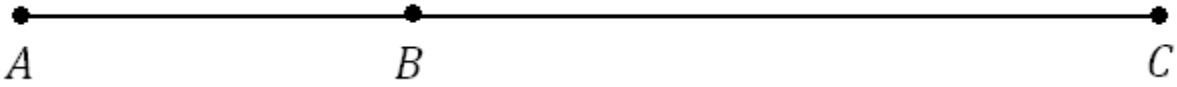
1. $m\measuredangle 3 + m\measuredangle 4 =$
   $m\measuredangle AEC$ or $m\measuredangle AED$ or $m\measuredangle HED$ or $m\measuredangle HEC$ (only need one)

2. $CD + DE =$ **CE**

3. If $\overrightarrow{EH}$ bisects $\measuredangle GEB$, then **$\measuredangle 2 \cong \measuredangle 3$** .

4. If E is the midpoint of $\overline{DF}$, then **$\overline{DE} \cong \overline{EF}$** .

DIRECTIONS: Use the following diagram for #5-7.

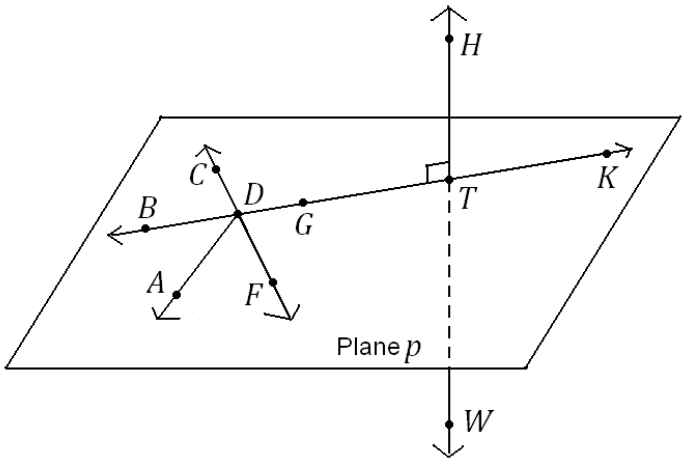


5. If $AB = 16$ and $BC = 27$, what is AC ? $AC =$ **43**

6. If $AB = 9$ and $AC = 24$, what is BC ? $BC =$ **15**

7. If $AB = 2x + 7$, $BC = 3x + 11$, and $AC = 6x + 9$,
   what is x ? $x =$ **9**

DIRECTIONS: For #8-16, use the diagram and given information to determine whether the following statements are **TRUE** or **FALSE**. Write the **entire** word in the blanks beside the statements.

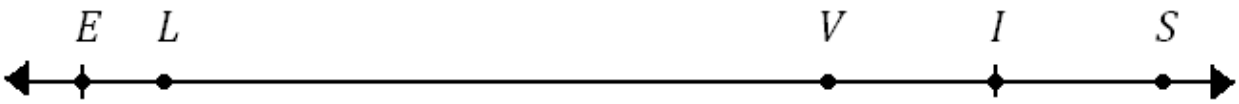


GIVEN: T is the midpoint of $\overline{GK}$.
$\overrightarrow{DA}$ bisects ∡BDF.
∡HTG is a right angle.

8. _____ $\overrightarrow{TG}$ is the opposite ray of $\overrightarrow{TK}$. **True**
9. _____ $\overrightarrow{TG}$ is the opposite ray of $\overrightarrow{GT}$. **False**
10. _____ A, F, and T are coplanar. **True**
11. _____ C, D, and F are collinear. **True**
12. _____ $m\measuredangle GTH = 90$ **True**
13. _____ $GT = KT$. **True**
14. _____ $\overleftrightarrow{BK}$ bisects plane p. **False**
15. _____ $\measuredangle GTH \cong \measuredangle KTH$ **True**
16. _____ $m\measuredangle GDF + m\measuredangle BDF = 180$. **True**

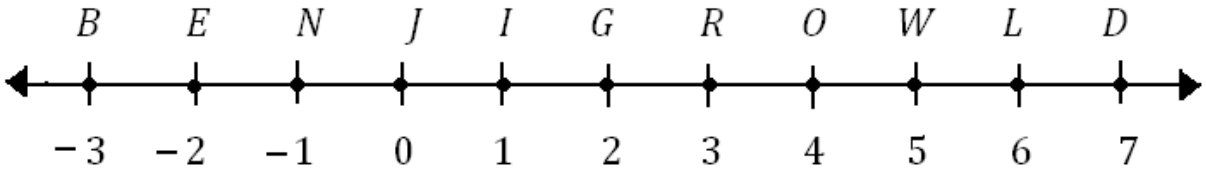
DIRECTIONS: For #17-20, use the line below to find the lengths of the segments.

GIVEN: I is the midpoint of $\overline{VS}$.
$EL = 2$, $SL = 22$, $EI = 19$



17. $LV =$ **12**
18. $VI =$ **5**
19. $IS =$ **5**
20. $ES =$ **24**

DIRECTIONS: Use the line below to answer #21-24.



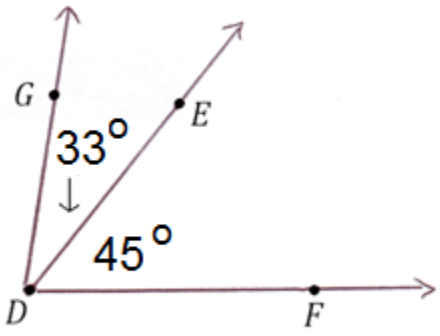
21. +3 is the coordinate of which point? ***R***

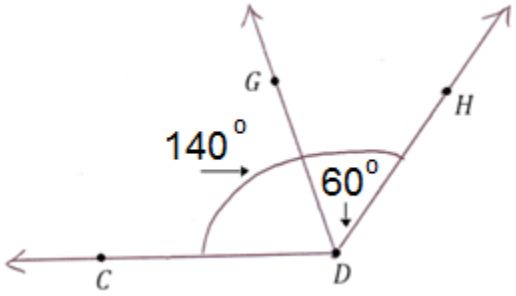
22. What is the coordinate of E? $\mathbf{-2}$

23. Name the **midpoint** of $\overline{EO}$. **I (this is a letter!)**

24. Name the point on $\overrightarrow{BN}$ with a distance of 4 from R. ***D***

DIRECTIONS: Use the diagrams accompanying #25-26 to find the angle measures.

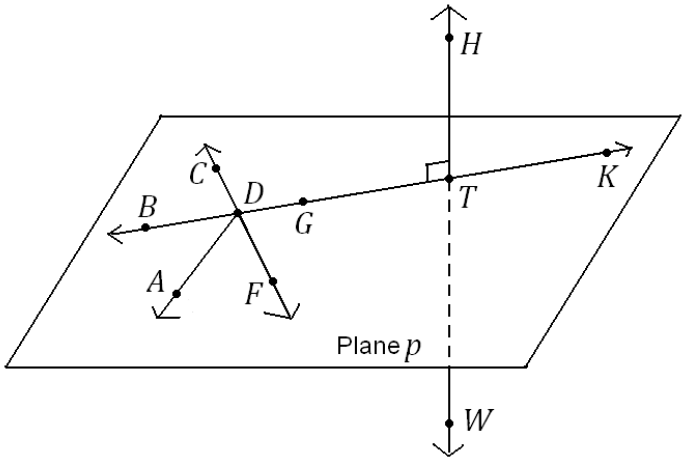




25. $m\measuredangle GDF$ $=$ **78**

26. $m\measuredangle CDG$ $=$ **80**

DIRECTIONS: For #27-30, use the diagram and given information to answer the questions. SHOW YOUR WORK on #27-29!!!



GIVEN: T is the midpoint of $\overline{GK}$.
$\overrightarrow{DA}$ bisects ∡BDF.
∡HTG is a right angle.

27. If $GT = 3x + 8$ and $TK = 5x - 4$, what is x? $x = 6$
GT? $GT = 26$
TK? $TK = 26$

28. If $GT = x + 7$ and $GK = 3x - 4$, what is x? $x = 18$
GT? $GT = 25$
GK? $GK = 50$

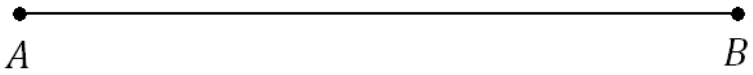
(Because of midpoint, $GT = \frac{1}{2} GK$ or $2 \cdot GT = GK$)

29. If $m\measuredangle ADF = 5x + 5$ and $m\measuredangle ADB = 4x + 16$,
what is x ? $x = 11$
$m\measuredangle ADF$? $m\measuredangle ADF = 60$

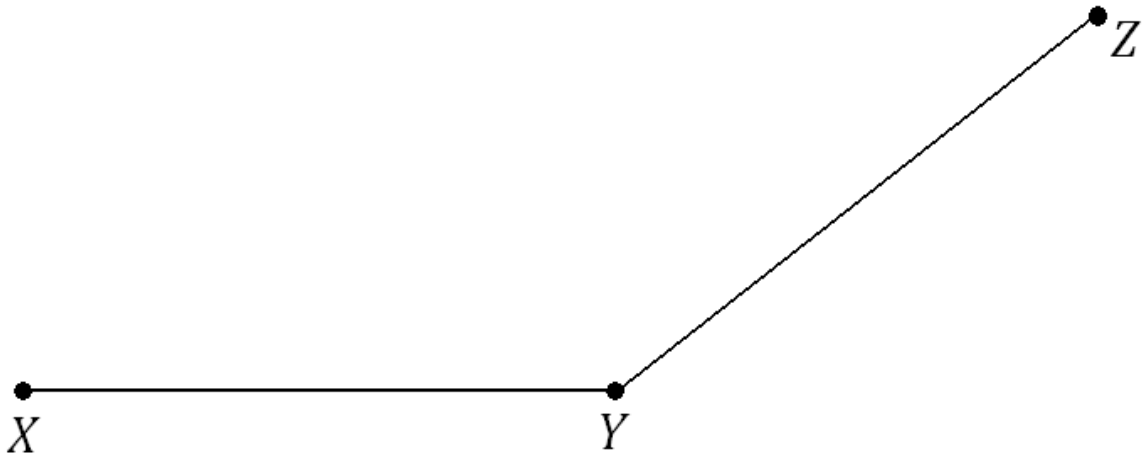
30. If $\measuredangle FDG$ is a right angle, what is $m\measuredangle ADF$? $m\measuredangle ADF = 45$

DIRECTIONS: Use a compass and a straightedge to accomplish the constructions in #31-32.

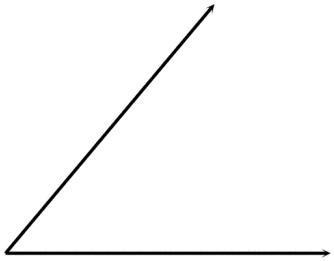
31. Bisect the following segment. Label the midpoint as the point M.
SHOW ALL WORK.



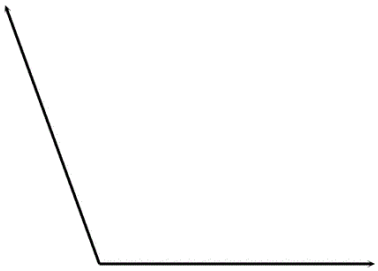
32. Bisect the following angle. Label the ray as $\overrightarrow{YM}$.
SHOW ALL WORK.



DIRECTIONS: Use a protractor for #33-34. Measure to the nearest degree and write the answers in the provided blanks.



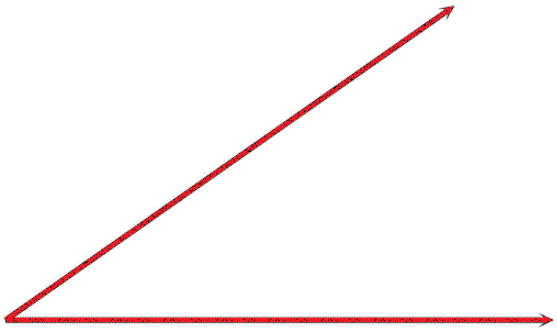
33. **50°**



34. **110°**

DIRECTIONS: Use a protractor to create angles with the measures provided in #35-36.

35. 35° angle



36. 120° angle