Formal Geometry Ch 1 Review Worksheet

Name:_____

1. The midpoint of a line segment AD is (1, 2). Point A has coordinates of (3, -3) and point D coordinates are (x, 7). Find the value of x.

2. Find two possible lengths for $\overline{CD}$ if C, D, and E are collinear, CE = 15.8 cm, and DE = 3.5 cm.

3. Find the length of $\overline{RT}$ if S is between R and T, S is a midpoint, RS = $3x + 3$, and ST = $5x - 6$.

4. Find the value of y if AC = $3y + 5$, CB = $4y - 1$, AB = $9y - 12$, and point C lies between A and B.

5. Two angles are complementary. The measure of one angle is 21 more than twice the measure of the other angle. Find the measures of the angles.

6. If a supplement of an angle has a measure 78 less than the measure of the angle, what are the measures of the angles?

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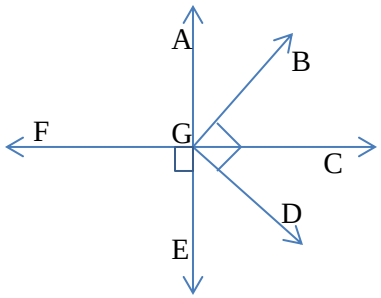
For # 7-8 use the figure at the right.



7. If $m\angle FGE = 5x + 10$, find the value of x so that $\overleftrightarrow{FC} \perp \overleftrightarrow{AE}$.

8. If $m\angle BGC = 16x - 4$ and $m\angle CGD = 2x + 13$, find the value of x so That $\angle BGD$ is a right angle.

For exercises 9-12 find the distance between each pair of points.

9. A(0, 0), B (6, 8)

10. R(-2, 3), S(3, 15)

11. K(1, -2), L(9, 13)

12. E(-12, 2), F(-9, 6)

For exercises 13-14 find the coordinates of the midpoint of a segment with the given endpoints.

13. K(-9, 3), H(5, 7)

14. W(-12, -7), T(-8, -4)

For exercises 15-16 find the coordinates of the missing endpoint if M is the midpoint of $\overline{DF}$.

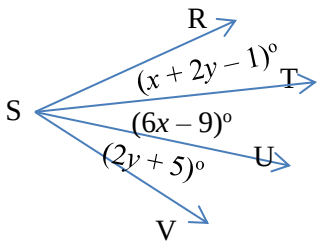
15. F(5, 8), M(4, 3)

16. F(-3, -8), M(1, -2)

17. Find the value of y if S is the midpoint of $\overline{RT}$, T is the midpoint of $\overline{RU}$ RS = $6x + 5$, ST = $8x - 1$, and TU = $11y + 13$.

18. Find all of the values of x that will make $\angle A$ an obtuse angle, given $m\angle A = 12x - 6$.

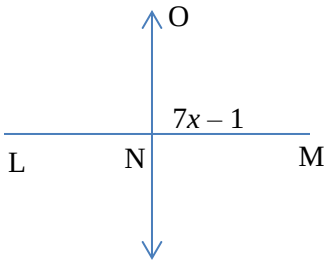
19. Find $m\angle RST$ if $\overrightarrow{ST}$ bisects $\angle RSU$ and $\overrightarrow{SU}$ bisects $\angle TSV$.



20. Find $m\angle 1$ if $\angle 1$ is complementary to $\angle 2$, $\angle 2$ is supplementary to $\angle 3$, and $m\angle 3 = 126$.

21. Find the value of y if $\overrightarrow{XW} \perp \overrightarrow{XZ}$, Y is in the interior of $\angle WXZ$, $m\angle WXY = 6y - 3$, and $m\angle YXZ = 4y + 13$.

22. Find the length of $\overline{LM}$ if $\overleftrightarrow{ON}$ is the bisector of $\overline{LM}$ and $LN = 3x + 2$.



23. Find the measure of an angle and its complement if one of the angle measures 24 degrees more than the other.

24. The measure of the supplement of an angle is 36 less than the measure of the angle. Find the measures of the angles.

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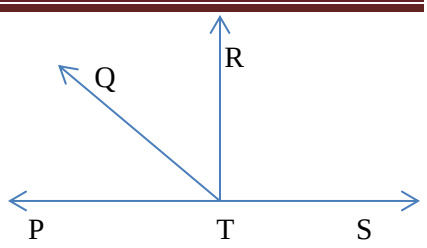
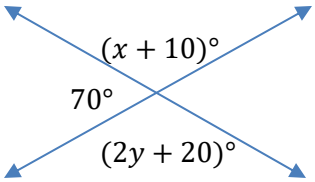
For exercises 25-26 use the figure at the right.



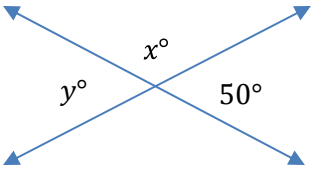
25. *If* $m\angle RTS = 8x + 18$, find the value of x so that $\overrightarrow{TR} \perp \overrightarrow{TS}$.

26. If $m\angle PTQ = 3y - 10$ and $m\angle QTR = y$, find the value of y so that $\angle PTR$ is a right angle.

27. Solve for x and y.



28. By how much does x exceed y?



29) Factor: $x^2 + 8x + 15$

30) Factor: $x^2 - 9x + 14$

31) Factor: $-12x^2 - 26x + 10$

32) Multiply: $(4x - 3)^2$

33) Multiply: $(x + 5)^2$

34) Multiply: $\left(3\sqrt{6}\right)^2$

35) What is the midpoint of the segment of $3y = 4x + 15$ between $x = 6$ *and* $x = 21$?

Answers:

1.) x = -1 2.) 19.3 or 12.3 3.) RT = 33 4.) y = 8 5.) 23 or 67 6.) 129 or 51
7.) x = 16 8.) x = 4.5 9.) 10 10.) 13 11.) 17 12.) 5
13.) (-2, 5) 14.) (-10, -5.5) 15.) (3, -2) 16.) (5, 4) 17.) y = 3 18.) 8<x<15.5
19.) $m\angle RST = 27$ 20.) 36 21.) y = 8 22.) 17/2 or 8.5 23.) 33, 57
24.) 108, 72 25.) x = 9 26.) y = 25 27.) x = 100, y = 45 28.) 80
29) $(x + 5)(x + 3)$ 30) $(x - 7)(x - 2)$ 31) $-2(2x + 5)(3x - 1)$
32) $16x^2 - 24x + 9$ 33) $x^2 + 10x + 25$ 34) 54
35) (13.5, 23)