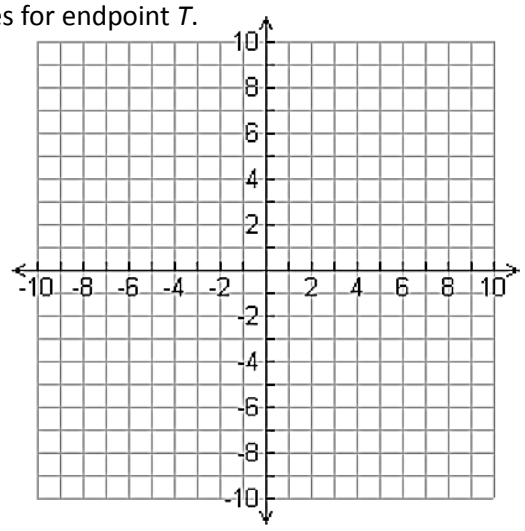
Geometry H
Extra Midterm Review

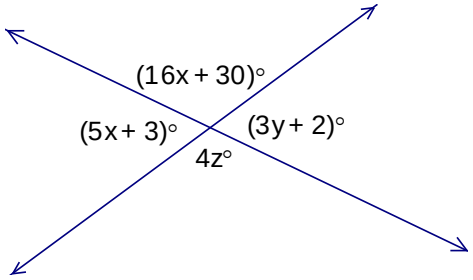
Name : _____
Date : _____ Period : ____

1. If *M* is the midpoint of segment *DE*, $DM = x^2 - 4x - 24$, and $EM = 2x + 3$, please find *DE*.

2. $\overline{PT}$ has endpoint *P*(8, 0) and midpoint *M*(6, -5). Find the coordinates for endpoint *T*.

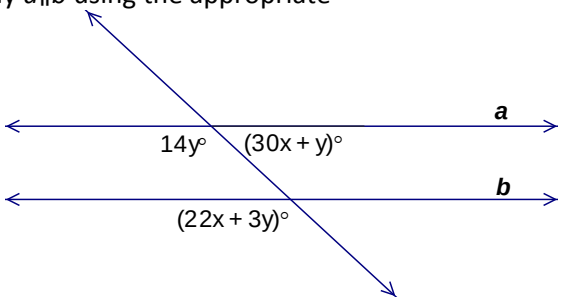


3. Solve for x, y, and z.



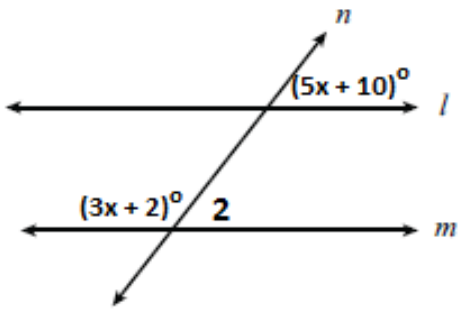
4. Given $\overrightarrow{BD}$ is an angle bisector for $\angle ABC$, and $\overrightarrow{FH}$ is an angle bisector for $\angle EFG$. Solve for x and y if $m\angle ABD = 0.2y - 0.5x$, $m\angle ABC = 116°$, $m\angle EFH = (172 + x)°$, and $m\angle HFG = 6y°$.

5. Please find the values of *x* and *y* that makes $a \| b$. Justify why $a \| b$ using the appropriate theorem/postulate.



6. Given: *l*||m. Please solve for *x*.

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.



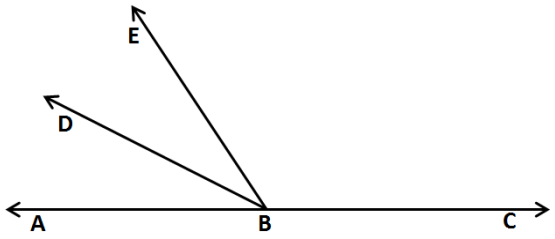
7. $\angle A$ and $\angle B$ are complementary angles. $\angle C$ and $\angle D$ are supplementary angles. Find the measures of the four angles, if $m\angle A = 2x°$, $m\angle B = 6y°$, $m\angle C = (6x + y)°$, and $m\angle D = (4x + 2y)°$

8. An angle is 275 less than four times its complement. Find the measure of the angle and its complement.

9. Two times the complement of an angle is 300 less than three times its supplement. What is the angle?

10. Point T is between points A and L. If $AT = x^2 + 2x - 2$, $TL = x - 2$, and $AL = 24$, find AT, and TL.

11. $\overrightarrow{BD}$ bisects $\angle ABE$. $\overrightarrow{BA}$ and $\overrightarrow{BC}$ are opposite rays. If $m\angle EBC = (2x^2 + x + 100)^\circ$ and $m\angle ABD = (x^2 + 2x + 37)^\circ$, please solve for x.

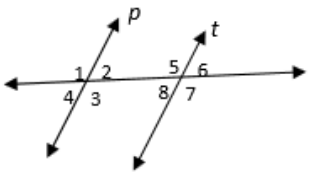


12. Write the equation of the line that is perpendicular to the line $y = \frac{3}{2}x + 7$ that passes through the point (-3, 4).

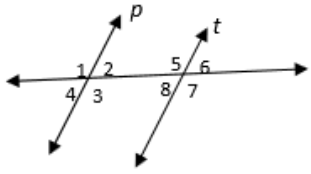
13. Three times an angle's complement is equal to half of its supplement. Find the angle.

14. Write the equation of the line that passes through (3, 5) and is parallel to the line that passes through (3, 3) and (-3, -1).

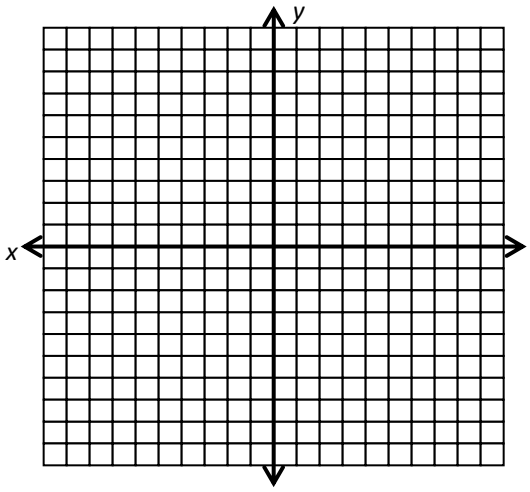
15. Given $l \parallel m$, $m\angle 3 = (4s - 3t)^\circ, m\angle 7 = (9s + 12t)^\circ$, and $m\angle 4 = (5s + 6t)^\circ$, please solve for s and t.



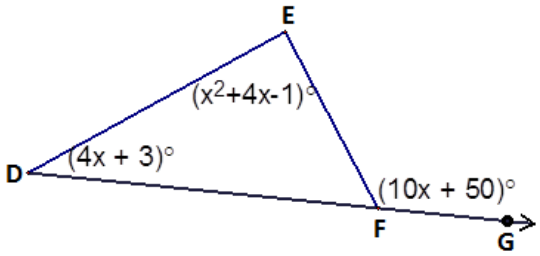
16. Given $p \parallel t$, $m\angle 3 = (x^2 - 2x)^\circ$ and $m\angle 6 = (3x + 108)^\circ$, please solve for x.



17. Please classify ΔABC by its side lengths. Then determine if the triangle is a right triangle given coordinates A(2, 3), B(4, 7), C(6, 1).

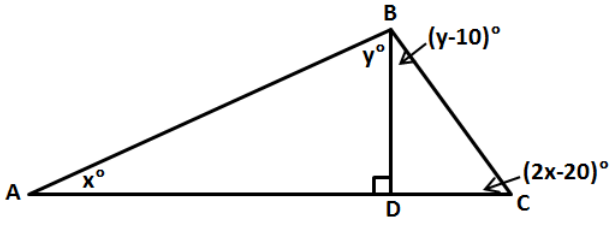


18. Please find the measure of the exterior angle shown.

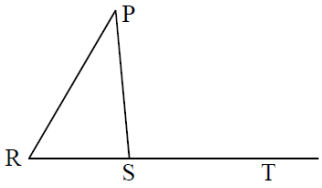


19. In ΔABC, $m\angle A$ is twice $m\angle B$, and $m\angle C$ is 8 more than $m\angle B$. What is the measure of each angle?

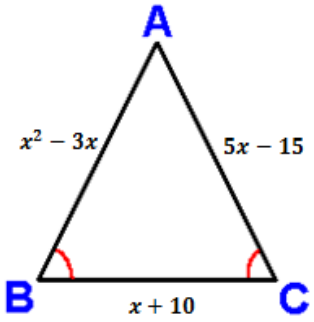
20. Please solve for x and y.



21. If $m\angle PST = (x+3y)°$, $m\angle RPS = 45°$, $m\angle PRS = 2y°$, and $m\angle PSR = 5x°$, find $m\angle PST$.

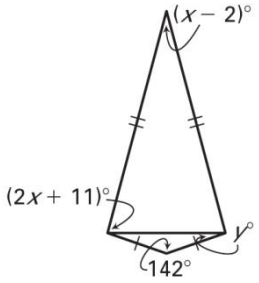


22. Using the diagram below, find the value of x.

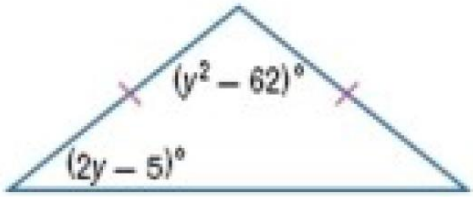


23. Solve for the indicated variable(s).

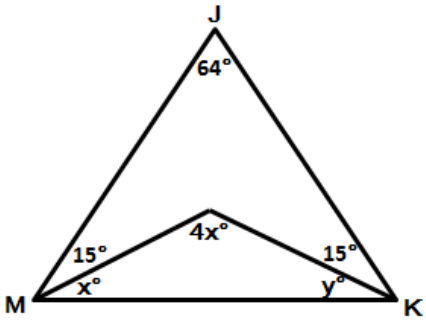
a.



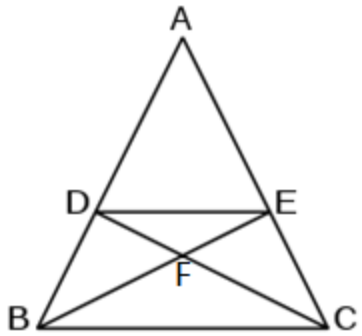
b.



c.

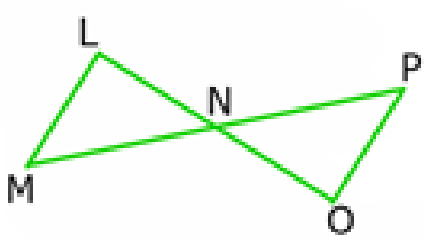


24. Given: $\angle EDC \cong \angle DEF$
$\angle FBC \cong \angle FCB$
Prove: $\triangle DBF \cong \triangle ECF$



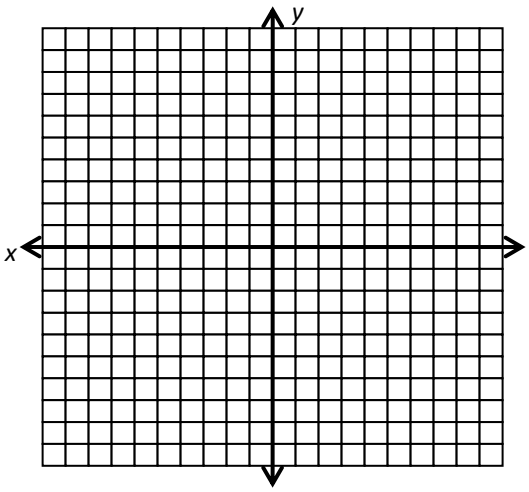
Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

25. Given: N is the midpoint of $\overline{LO}$
$\overline{LM} \parallel \overline{OP}$
Prove: $\triangle LNM \cong \triangle ONP$



Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

26. Dilate $\triangle ABC$ by a scale factor of ½ using (2, 4) as the center of dilation given points A(-8, 2), B(-2, 2), and C(-4, -4).



Answer Key:

1. x = 9, *DE* = 21
2. T(4, -10)
3. x = 7, y = 12, z = 35.5
4. x = -112, y = 10
5. Equation Set-ups: 14y+30x+y=180 (Linear Pair Postulate)
   14y = 22x + 3y (Corresponding Angles Converse)
   x = 3, y = 6
6.

Statements	Reasons
1. l∥m	1. Given
2. m∠2 = 5x + 10	2. Corresponding Angles Postulate
3. 3x+2+5x+10=180	3. Linear Pair Postulate
4. 8x + 12 = 180	4. Combine Like Terms
5. 8x = 168	5. Subtraction Property
6. x = 21	6. Division Property

7. x = 15, y = 10, m∠A = 30°, m∠B = 60°, m∠C = 100°, m∠D = 80°
8. 17° and 73°
9. 60°
10. x = 4, *AT* = 22, *TL* = 2
11. x = ¾ , x = -2
12. $y = -\frac{2}{3}x + 2$
13. 72°
14. $y = \frac{2}{3}x + 3$
15. s = 22.5, t = -7.5
16. x = -9, x = 8
17. Isosceles Right Triangle because $\overline{AB} \cong \overline{AC}$ and $\overline{AB} \perp \overline{AC}$
18. x = 8, m∠EFG = 130°
19. x = 43, m∠A = 86°, m∠B = 43°, m∠C=51°
20. x = 30, y = 60
21. x = 15, y = 30, m∠PST = 105°
22. x = 5
23. a. x = 32, y = 19 b. y = 14 c. x = 23.5, y = 62.5

24.

Statements	Reasons
1. $\angle EDC \cong \angle DEF$	1. Given
2. $\overline{DF} \cong \overline{EF}$	2. Base Angles Converse
3. $\angle FBC \cong \angle FCB$	3. Given
4. $\overline{BF} \cong \overline{CF}$	4. Base Angles Converse
5. $\angle DFB \cong \angle EFC$	5. VAT
6. $\triangle DBF \cong ECF$	6. SAS

25.

Statements	Reasons
1. N is the midpoint of $\overline{LO}$	1. Given
2. $\overline{LN} \cong \overline{ON}$	2. Definition of Midpoint
3. $\angle LNM \cong \angle ONP$	3. VAT
4. $\overline{LM} \parallel \overline{OP}$	4. Given
5. $\angle MLN \cong \angle PON$ OR $\angle LMN \cong \angle OPN$	5. Alternate Interior Angles Thm
6. $\triangle LNM \cong \triangle ONP$	6. ASA OR AAS

26. A'(-3, 3), B'(0, 3), C'(-1, 0)