Geometry A
Final Exam Review ANSWERS

Chapter 1: Basics of Geometry

1. Answers are:
   $\overleftrightarrow{GC}$ (other possible answers)
   G
   E or F or A
   G
   AFE (other possible answers)
   $\overline{XG}$
   Line *m* (other possible answers)

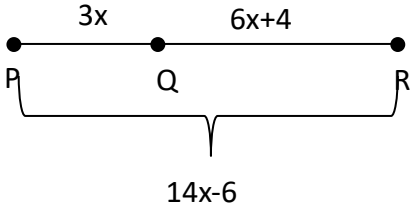
2. Point, line, plane

3. Answers are:
   $\angle 4$
   $\angle 5$
   none
   $\angle 4$ or $\angle 2$

4. Answers are: (there might be other answers possible)
   $\overline{AB}$ & $\overline{DE}$
   $\overline{AD}$ & $\overline{DE}$
   $\overline{DE}$ & $\overline{BC}$
   planes ABC & DEF

5. Answers are:
   $m\angle XYZ = 35°$
   Right
   Acute

6. Picture, work, answers:



$PQ + QR = PR$

$3x + 6x + 4 = 14x - 6$ $\quad PQ = 3(2) = 6$

$9x + 4 = 14x - 6$ $\quad QR = 6(2) + 4 = 16$

$10 = 5x$ $\quad PR = 14(2) - 6 = 22$

$2 = x$

7. Work & answer:
$\left(\frac{-4+3}{2}, \frac{6+2}{2}\right) = (-0.5, 4)$

8. Work & answer:
$\sqrt{(3-(-4))^2 + (-2-2)^2} = \sqrt{7^2 + (-4)^2}$
$= \sqrt{49+16} = \sqrt{65} = 8.06$

9. Work & answer:
Slope of $\overline{ST}$: Slope of $\overline{UV}$:
$\frac{3-5}{2-(-4)} = \boxed{\frac{-1}{3}}$ $\frac{1-4}{-2-(-1)} = \boxed{\frac{3}{1}}$
Slopes are opposite reciprocals, so the Segments are PERPENDICULAR.

Chapter 2: Reasoning and Proofs

10. Answers are:
Hypothesis: WE HAVE A SNOW DAY
Conclusion: SCHOOL IS CLOSED
Converse: IF SCHOOL IS CLOSED, THEN WE HAVE A SNOW DAY (F)
Inverse: IF WE DON'T HAVE A SNOW DAY, THEN SCHOOL ISN'T CLOSED (F)
Contrapositive: IF SCHOOL ISN'T CLOSED, THEN WE DON'T HAVE A SNOW DAY (T)

11. Answers are:
FALSE, could be a leap year
TRUE
FALSE, could be sunny/snowing/windy

12. Conclusion:
If you mow the neighbor's yard, then YOU WILL GO TO THE MOVIES

13. Proof:

Statement	Reason
1. $\angle 4$ and $\angle 5$ are complementary	Given
2. $m\angle 4 + m\angle 5 = 90°$	Definition of complementary angles
3. $\angle 5$ and $\angle 6$ are complementary	Given
4. $m\angle 5 + m\angle 6 = 90°$	Definition of Complementary Angles
5. $m\angle 4 + m\angle 5 = m\angle 5 + m\angle 6$	Transitive Property of Equality
6. $m\angle 5 = m\angle 5$	Reflexive Property of Equality
7. $m\angle 4 + m\angle 5 - m\angle 5 = m\angle 5 - m\angle 5 + m\angle 6$	Subraction Property of Equality
8. $m\angle 4 = m\angle 6$	Simplify
9. $\angle 4 \cong \angle 6$	Definition of Congruent Angles

14. Answers are:
    Transitive Property of Equality
    Reflexive Property of Congruence
    Symmetric Property of Congruence
    Addition Property of Equality
    Definition of Right Angle
    Definition of Midpoint
    Definition of Congruent Angles
    Segment Addition Postulate
    Definition of Supplementary Angles
    Definition of Congruent Segments
    Distributive Property
    Definition of Angle Bisector

15. Blanks are:
    Inductive, conjecture, deductive

16. Biconditional: “Angles are congruent IF AND ONLY IF they have the same angle measure.”

Chapter 3: Parallel and Perpendicular Lines

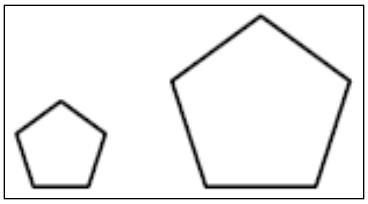
17. Answers are:
    Corresponding: 1,5 // 3,6 // 2,7 // 4,8
    Vertical: 1,4 // 2,3 // 5,8 // 6,7
    Linear pair: 1,3 // 5,6 // 2,4 // 7,8 // 1,2 // 3,4 // 5,7 // 6,8
    AIA: 3,7 // 4,5
    AEA: 1,8 // 2,6
    SSIA: 3,5 // 4,7

18. Answers are:
    Yes, Converse of CIA Theorem
    Yes, Converse of CIA Theorem
    Yes, Converse of Corresponding Angles Postulate
    Not enough information
    Yes, Converse of AIA Theorem
    Yes, Converse of AEA Theorem

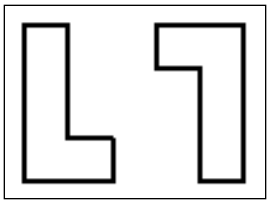
Chapter 4: Transformations

19. Vertices of each image:
    a. $K'(2,4), L'(-3,3), M'(1,-2)$
    b. $K'(2,-1), L'(1,4), M'(-4,0)$
    c. $K'(4,2), L'(3,-3), M'(-2,1)$
    d. $K'(6,-3), L'(4.5,4.5), M'(-3,-1.5)$

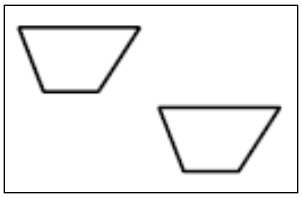
20. Answers below each figure:



DILATION



ROTATION



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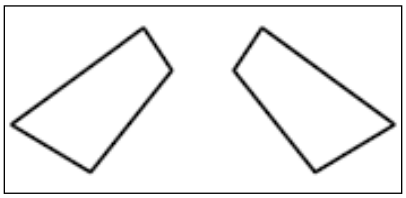

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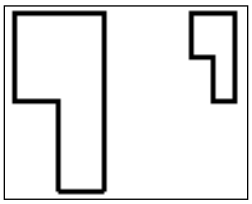

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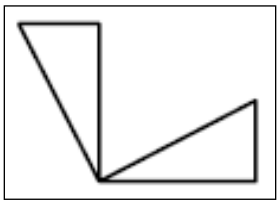


ROTATION

Chapter 5: Congruent Triangles

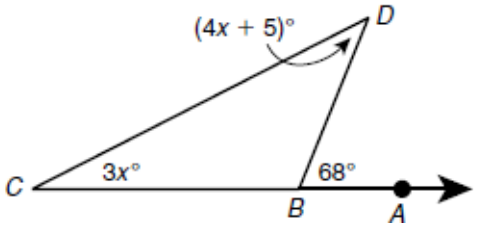
21. Answers are:
    $m\angle A = 73°$
    $DE = 2.6$ cm
    $m\angle B = 65°$

22. C.P.C.T.C. → Corresponding Parts of Congruent Triangles are Congruent

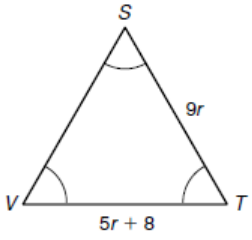
23. Answers are:
    $m\angle ADB = 30°$, $m\angle DBC = 80°$, $m\angle CDB = 60°$

24. Answers are:
    Rotation of 180° followed by translation of $\langle -1,1 \rangle$
    OR
    Reflection over the x-axis followed by reflection over the y-axis followed by translation of $\langle -1,1 \rangle$
    OR
    Reflection over the y-axis followed by reflection over the x-axis followed by translation of $\langle -1,1 \rangle$

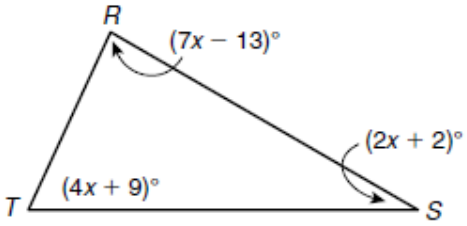
25. Figures & work:



$68 = 3x + (4x + 5)$
$68 = 7x + 5$
$63 = 7x$
$9 = x$

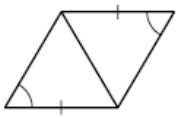


$9r = 5r + 8$
$4r = 8$
$r = 2$



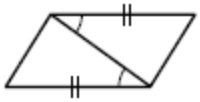
$(7x - 13) + (4x + 9) + (2x + 2) = 180$
$13x - 2 = 180$
$13x = 182$
$x = 14$

26. Answers below figures:

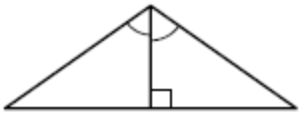


f. NONE

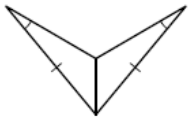
b. SAS



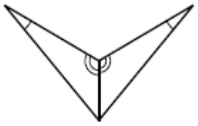
b. SAS



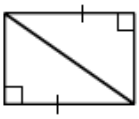
c. ASA



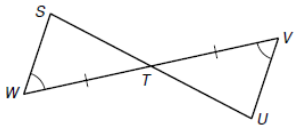
f. NONE



d. AAS



e. HL



c. ASA

27. Answers are:
$DE = 22$
$\angle DCR$ or $\angle T$ or $\angle DES$

28. Answers are:
Centroid
$NL = 3$, $IM = 7.5$