Unit 7 Congruent Triangles and Quadrilaterals Review

If you can do all of this review, you will likely do well on the test… so do this review!!

What you’ll need to do…
*Name the transformation (Translation, Reflection, Rotation)
*Identify the corresponding parts of a preimage and image

1. State the point, segment or triangle that represents the image.
   a. $90^\circ$ counterclockwise rotation of $C$ about $Q$. __________
   b. $90^\circ$ clockwise rotation of $C$ about $Q$. __________
   c. $180^\circ$ clockwise rotation of $ML$ about $Q$. __________
   d. reflect $A$ over $HB$. __________
   e. reflect $\triangle LPF$ over $HD$. __________

What you’ll need to do…
*Identify congruent parts of congruent polygons.
*Use the properties of isometries to find missing angles and side lengths.

2. Given $\triangle ABC \cong \triangle DEF$, name six pairs of congruent corresponding parts.
   __________ $\cong$ __________
   __________ $\cong$ __________
   __________ $\cong$ __________
   __________ $\cong$ __________
   __________ $\cong$ __________
   __________ $\cong$ __________

3. In the diagram, $\triangle MKL \cong \triangle JET$. Complete each statement.
   $\angle L \cong$ __________
   $\overline{MK} \cong$ __________
   $m\angle M =$ __________
   $m\angle T =$ __________
   $ML =$ __________
   $\triangle ETJ \cong$ __________

4. Given $\triangle WXY \cong \triangle MNO$, find the values of $a$ and $b$. 
What you’ll need to do…
*Write a congruence statement for congruent polygons
*Prove that triangles are congruent (SSS, ASA, SAS, AAS)

5. Given $\triangle MAT$, name the included angle between $\overline{MT}$ and $\overline{TA}$.

6. Given $\triangle CDA$, name the included side between $\angle C$ and $\angle D$.

7. State the third congruence that must be given to prove that $\triangle ABC \cong \triangle DEF$ using the indicated postulate or theorem.

   a. ASA Congruence Postulate

   $\triangle ABC \cong \triangle DEF$

   b. AAS Congruence Theorem

   $\triangle ABC \cong \triangle DEF$

   c. SSS Congruence Postulate

   $\triangle ABC \cong \triangle DEF$

   d. SAS Congruence Theorem

   $\triangle ABC \cong \triangle DEF$
Tell whether you can prove that the triangles are congruent. If you can, name the congruent triangles and tell which postulate or theorem you can use.

a) [Diagram of triangle XWY]
b) [Diagram of triangle AME]
c) [Diagram of parallelogram HJKL]
d) [Diagram of triangle ABD]
e) [Diagram of triangle NKL]
f) [Diagram of triangle TRG]
g) [Diagram of triangle WXZ]
h) [Diagram of triangle STR]
i) [Diagram of segments OS]
j) [Diagram of segments AD]
k) [Diagram of rectangle ACDR]
l) [Diagram of triangle QRS]
What you’ll need to do…
*Use the properties of parallelograms, rectangles, rhombuses, squares, trapezoids, and isosceles trapezoids to solve problems.
*Classify a quadrilateral as a parallelogram, rectangle, rhombus, square, trapezoid, or isosceles trapezoid.

For #9 and #10, Given quadrilateral WXYZ is a rectangle, complete the statement.

9. If \( WY = 3a + 16 \) and \( ZX = 5a - 18 \), then \( a = \) ________.

10. If \( m\angle TWZ = 70^\circ \), then \( m\angle TZW = \) ________ and \( m\angle WTZ = \) ________.

For #11 and #12, Given quadrilateral \( ABCD \) is a rhombus, complete the statement.

11. If \( m\angle 4 = 3x - 2 \) and \( m\angle 5 = 2x + 7 \), then \( x = \) ________.

12. If \( m\angle 2 = 3y + 9 \) and \( m\angle 4 = 2y - 4 \), then \( y = \) ________.

For #13 - #16, Given quadrilateral \( TRAC \) is a parallelogram, complete the statement.

13. If \( TK = 2x + 7 \), \( CK = 3x - 9 \), and \( KA = 15 \), then \( x = \) ________.

14. If \( m\angle 2 = 2y - 5 \) and \( m\angle 3 = y + 17 \), then \( y = \) ________.

15. If \( m\angle RTC = 120^\circ \) and \( m\angle CAR = 8y \), then \( y = \) ________.

16. If \( m\angle CTR = 2y - 13 \), \( m\angle ACT = y + 1 \), and \( m\angle CAR = 7x - 4 \), find the values of \( x \) and \( y \).

There is no picture for #17… unless you decide to draw one ;) 

17. Square \( JKLM \) has \( m\angle LJK = (3x + 15)^\circ \). Find the value of \( x \)
Find the value of the variable in each isosceles trapezoid.

18. \( QS = x + 5 \)
\( QR = x + 1 \)
\( RP = 3x + 3 \)
\( PS = 4x - 1 \)

What value of \( x \) and \( y \) will make the polygon a parallelogram?

20. \( x + 3y \)
21. \( 6x \)
\( y \)
\( 72 \)
\( x - 5 \)

Name the missing coordinates for each figure.

22. \( E(?, ?) \)
\( F(a - b, c) \)

23. \( M(?, ?) \)
\( N(a + b, c) \)

24. \( T(?, ?) \)
\( U(2a, c) \)

There is no picture for #25… unless you draw one ;)

25. Determine the best name for quadrilateral \( ABCD \). Be sure to justify your answer.
\( A(0, 4), B(3, -1), C(8, 2), D(5, 7) \)
26. Write a proof.

Given: $\Box ABCD$

$BE \cong FD$

Prove: $AF \cong CE$