Geometry – Chapter 4 Review Sheet: Congruent Triangles

State the postulate or theorem you would use to prove each pair of triangles congruent. If the triangles can not be proved congruent, write not possible.

1. [Diagram of two triangles with marked corresponding sides]
2. [Diagram of two triangles with marked corresponding sides]
3. [Diagram of two triangles with marked corresponding sides]
4. [Diagram of two triangles with marked corresponding sides]
5. [Diagram of two triangles with marked corresponding sides]
6. [Diagram of two triangles with marked corresponding sides]
7. [Diagram of two triangles with marked corresponding sides]
8. [Diagram of two triangles with marked corresponding sides]

Write a congruence statement for each pair of triangles.

9. [Diagram of two triangles with marked corresponding sides]
10. [Diagram of two triangles with marked corresponding sides]
11. [Diagram of two triangles with marked corresponding sides]

Identify each triangle as acute, right or obtuse.

12. [Diagram of a triangle with angles labeled]
13. [Diagram of a triangle with angles labeled]
14. [Diagram of a triangle with angles labeled]
15. [Diagram of a triangle with angles labeled]
16. [Diagram of a triangle with angles labeled]
17. [Diagram of a triangle with angles labeled]
Identify each triangle as scalene, isosceles, or equilateral.

18. 

19. 

20. 

21. 

22. 

23. 

Find the measure of each numbered angle

24. 

25. 

26. 

27. 

28. 

29. 

30. If $\triangle DEF$ is isosceles, $\angle E$ is the vertex, and $DE = 4x + 12, EF = 7x - 9$. Find $x$ and the length of the legs.

31. $\triangle FGH$ is equilateral with $FG = x + 5, GH = 3x - 9$, and $FH = 2x - 2$. Find the value of $x$ and the lengths of the sides of the triangle.

Find the value for each variable.

32. 

33. 

34. 

35.
1. HL 2. not possible 3. SAS 4. AAS
5. ASA 6. SSS 7. not possible 8. SSS

9. ΔABC ≅ ΔRST 10. ΔABC ≅ ΔJKL 11. ΔABC ≅ ΔDCB

12. right 13. obtuse 14. acute
15. acute 16. right 17. obtuse

18. scalene 19. equilateral 20. scalene
21. isosceles 22. isosceles 23. equilateral

24. ∠1=55, ∠2=55, ∠3=70 25. ∠1=125, ∠2=55, ∠3=95 26. ∠1=120
27. ∠1=140, ∠2=55, ∠3=65, ∠4=75, ∠5=115 28. ∠1=27, ∠2=27 29. ∠1=28

30. Since the triangle is isosceles, DE = EF. So 4x + 12 = 7x – 9. Solving, we get x = 7. Substituting 7 in for x, we get that each leg is 40.

31. Since the triangle is equilateral, all 3 sides are congruent. So x + 5 = 3x – 9. Solving, we get x = 7. Substituting 7 in for x, we get that each side is 12.

32. 3x + 2x + 4x = 180. Solving the equation results in x = 20.

33. Triangle is isosceles, so x = 2x – 6. Solving the equation results in x = 6.

34. Triangle is isosceles, so base angles are congruent. Thus 7x + 5 = 9x – 13. Solving the equation results in x = 9. This makes each angle 68. Then 4y + 68 + 68 = 180 and y = 11.

35. The exterior angle is equal to the sum of the two nonadjacent interior angles. So 6x – 7 = 2x + 103 – x. Solving the equation results in x = 22.