Worksheet Triangle Inequalities

Name _____

Decide whether each set of numbers is a triangle.

1) 15, 12, 9

2) 23, 16, 7

3) 20, 10, 9

4) 8.5, 6.5, 13.5

5) 47, 28, 70

6) 28, 41, 13

7) 5, 10, 15

8) 9, 40, 41

9) 12, 2.2, 14.3

10) 6,9, 16

The measures of two sides are given. Between what two numbers must the third side fall.

11) 9 and 15   11) Write an inequality to represent your answer:_____

12) 11 and 20   12) Write an inequality to represent your answer:_____

13) 23 and 14   13) Write an inequality to represent your answer:_____

14) 5 and 8   14) Write an inequality to represent your answer:_____

15) 15 and 18   15) Write an inequality to represent your answer:_____

16) 22 and 34   16) Write an inequality to represent your answer:_____

17) 47 and 71   17) Write an inequality to represent your answer:_____

18) 21 and 47   18) Write an inequality to represent your answer:_____

Name the largest and the smallest angle.

19)

20)

21)
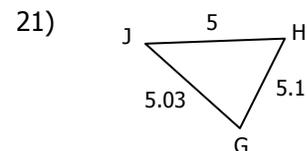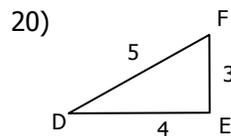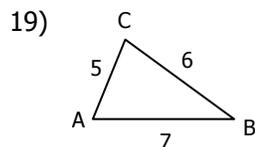
List the angles of △ABC from the smallest to the largest.

22) $\overline{AB} = 17$, $\overline{BC} = 21$, $\overline{AC} = 18$

23) $\overline{AB} = 15$, $\overline{AC} = 16$, $\overline{BC} = 17$

List the sides in order, underline the side with the shortest length.

24)

25)

26)
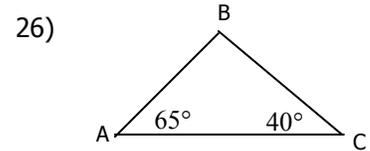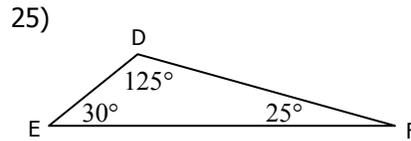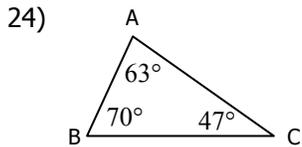
List the sides of $\triangle ABC$ from the longest to shortest.

27) $m\angle A = 46°$, $m\angle B = 30°$

28) $m\angle C = 101°$, $m\angle B = 70°$

29) $m\angle A = 59°$, $m\angle C = 61°$

Find the value of x and list the sides of $\triangle ABC$ in order from shortest to longest if the angles have the indicated measures. (Hint: Find the angle measures first, then decide which sides are the longest)

30) $m\angle A = (9x + 29)°$, $m\angle B = (93 - 5x)°$, and $m\angle C = (10x + 2)°$.

31) $m\angle A = (9x - 4)°$, $m\angle B = (4x - 16)°$, and $m\angle C = (68 - 2x)°$.

32) $m\angle A = (12x - 9)°$, $m\angle B = (62 - 3x)°$, and $m\angle C = (16x + 2)°$.

33) $m\angle A = (5x + 2)°$, $m\angle B = (6x - 10)°$, and $m\angle C = (x + 20)°$.

34) $m\angle A = (10x)°$, $m\angle B = (5x - 17)°$, and $m\angle C = (7x - 1)°$.

Answer the following questions.

35) Draw $\triangle DEA$ with a median $\overline{EG}$.

36) Draw $\triangle JKH$ with an altitude $\overline{JP}$.

37) Find the value of x.

$\overline{SO}$ is an altitude of $\triangle SAT$

$(4x - 6)°$