

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: _____

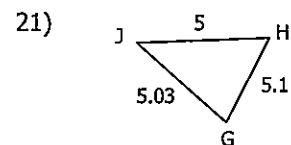
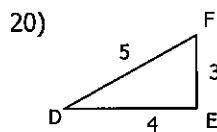
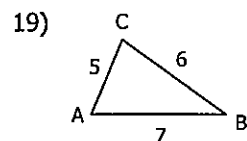
17) 47 and 71

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.



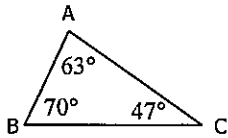
List the angles of $\triangle ABC$ from the smallest to the largest.

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

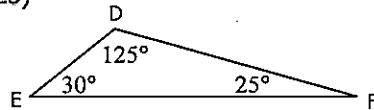
23) $\overline{AB} = 15$, $\overline{AC} = 16$, $\overline{BC} = 17$

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

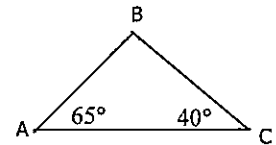
24)



25)



26)



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

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

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

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

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

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

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

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

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

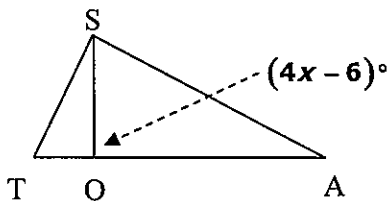
Answer the following questions.

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 $\triangle SAT$



12/4/12

Worksheet Triangle Inequalities

Name Key

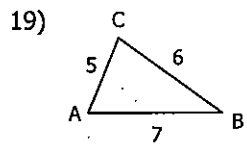
Decide whether each set of numbers is a triangle.

- 1) 15, 12, 9 yes
- 2) 23, 16, 7 No
- 3) 20, 10, 9 No
- 4) 8.5, 6.5, 13.5 yes
- 5) 47, 28, 70 yes
- 6) 28, 41, 13 No
- 7) 5, 10, 15 No
- 8) 9, 40, 41 yes
- 9) 12, 2.2, 14.3 No
- 10) 6, 9, 16 No

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

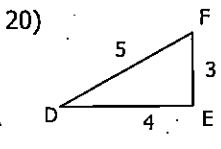
- 11) 9 and 15 $\frac{15}{-9}$ $\frac{9}{+15}$ 24
11) Write an inequality to represent your answer: $6 < l < 24$
- 12) 11 and 20 31
12) Write an inequality to represent your answer: $9 < l < 31$
- 13) 23 and 14 37
13) Write an inequality to represent your answer: $9 < l < 37$
- 14) 5 and 8 13
14) Write an inequality to represent your answer: $3 < l < 13$
- 15) 15 and 18 33
15) Write an inequality to represent your answer: $3 < l < 33$
- 16) 22 and 34 56
16) Write an inequality to represent your answer: $12 < l < 56$
- 17) 47 and 71 118
17) Write an inequality to represent your answer: $24 < l < 118$
- 18) 21 and 47 68
18) Write an inequality to represent your answer: $76 < l < 68$

Name the largest and the smallest angle.

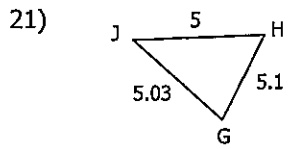


largest: $\angle C$; smallest: $\angle B$

List the angles of $\triangle ABC$ from the smallest to the largest.



$\angle E + \angle D$



$\angle J + \angle G$

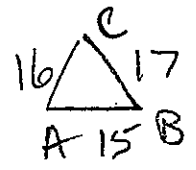


22) $\overline{AB} = 17, \overline{BC} = 21, \overline{AC} = 18$

$\angle C, \angle B, \angle A$

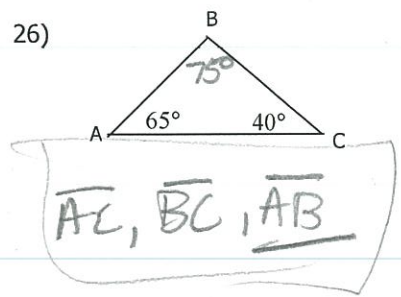
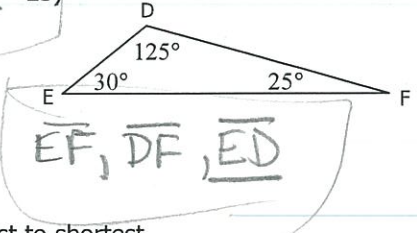
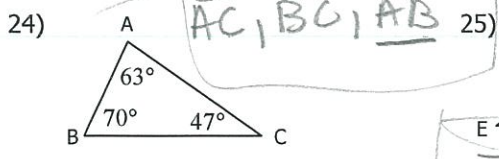
23) $\overline{AB} = 15, \overline{AC} = 16, \overline{BC} = 17$

$\angle C, \angle B, \angle A$

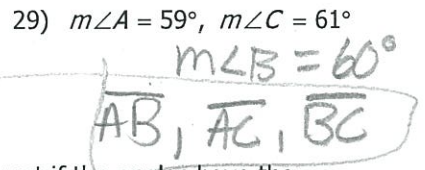
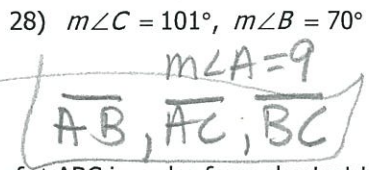
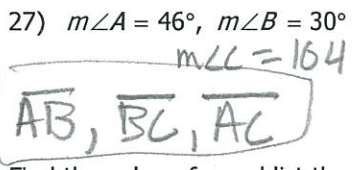


Large to small

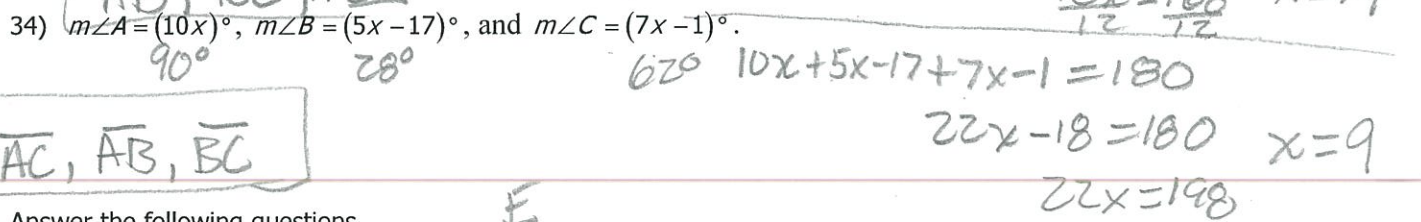
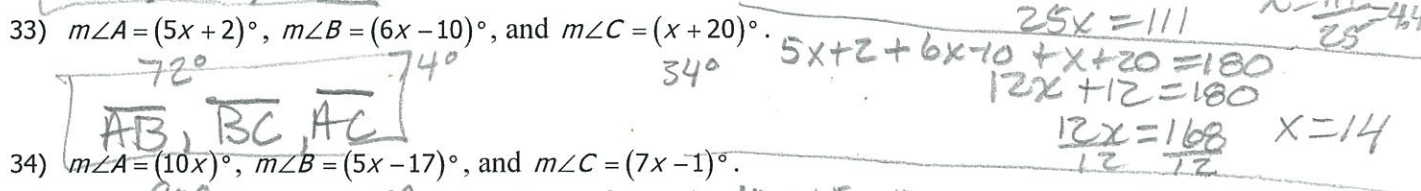
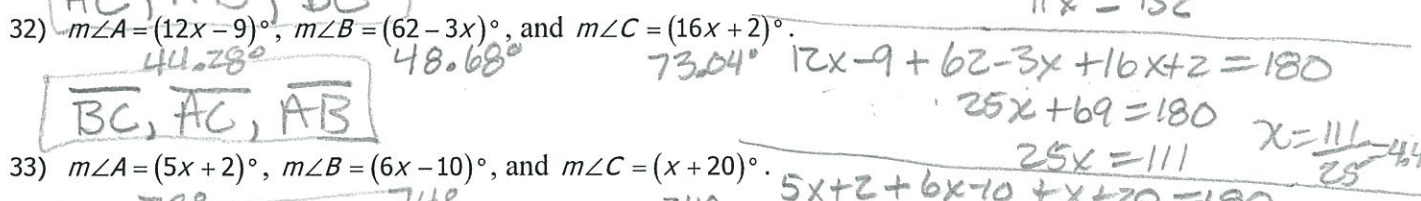
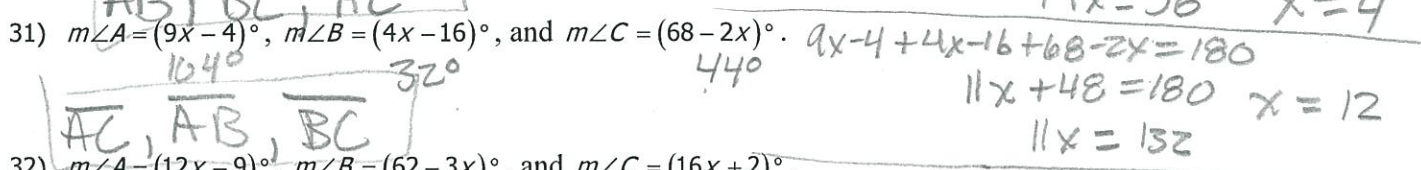
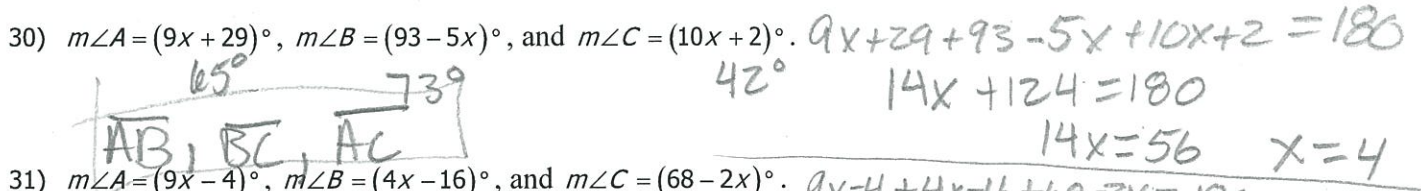
List the sides in order, underline the side with the shortest length.



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

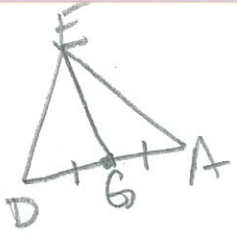


Find the value of x and list the sides of $\triangle ABC$ in order from shortest to longest if the angles have the indicated measures. (Hint: Find the angle measures first, then decide which sides are the longest)

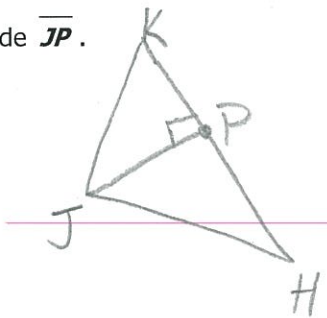


Answer the following questions.

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

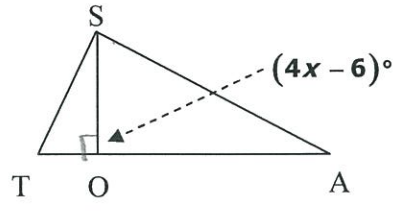


36) Draw $\triangle JKH$ with an altitude \overline{JP} .



37) Find the value of x .

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



$$4x - 6 = 90$$

$$\begin{array}{r} 4x - 6 = 90 \\ +6 \quad +6 \\ \hline 4x = 96 \\ \frac{4x}{4} = \frac{96}{4} \\ x = 24 \end{array}$$