1. List the sides in order from shortest to longest.
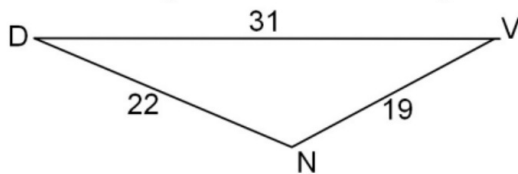
Q 47°   48° R
      85°
      M

RM, MQ, QR

2. In △CGW ∠C = 104° and ∠W = 51°. List the sides in order from longest to shortest.

GW, GC, CW

C
104°
25   51° W

3. List the angles in order from largest to smallest.

D ——— 31 ——— V
  22   19
      N

N, V, D

4. In △STP, PT=18 and ST=25. The perimeter of △STP
is 52 units. List the angles in order from smallest to largest.

T, S, P
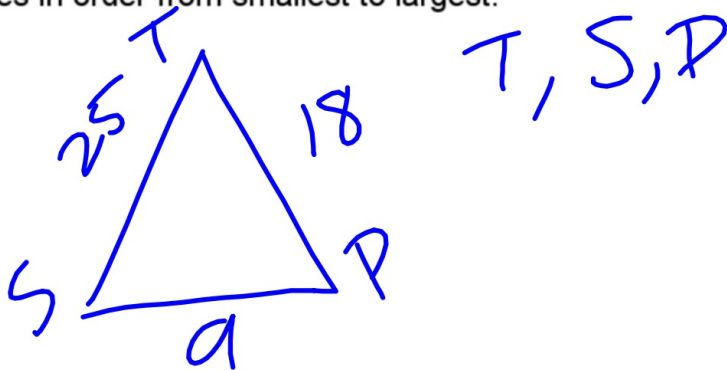
Solve each for x.

5. $\dfrac{48}{x} = \dfrac{108}{55}$

$108x = 2640$

$x = 24.4$

6. $\dfrac{x+3}{9} = \dfrac{2x-7}{20}$

$20x + 60 = 18x - 63$

$2x = -123$

$x = -61.5$

7. Solve for both x and y.

$\dfrac{6}{20} = \dfrac{x}{8} = \dfrac{57}{y}$

$48 = 20x$

$x = 2.4$

$\dfrac{2.4}{8} = \dfrac{57}{y}$

$2.4y = 456$

$y = 190$

Hwk #29 Answers

4. $\angle M, \angle L, \angle K$ 8. $\angle E, \angle F, \angle D$ 10. MN, ON, MO   13. AC, AB, BC

16. No; 2 + 3 < 6   17. Yes; a triangle can have the given lengths since no two sides added together is less than or equal to the third side.

25. Let x = third side;
x > 23 – 18
x < 23 + 18
The third side is greater than 5 and less than 41.

x + 18 > 23;   18 + 23 > x
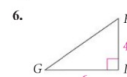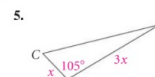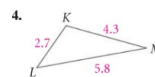x > 5   x < 41

26. Let x = third side;
x > 7 – 4
x < 7 + 4
The third side is greater than 3 and less than 11

37. XY

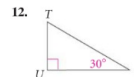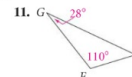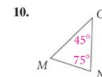List the angles of each triangle in order from smallest to largest.

4.

5.

6.

7. $\triangle ABC$, where $AB = 8$, $BC = 5$, and $CA = 7$

8. $\triangle DEF$, where $DE = 15$, $EF = 18$, and $DF = 5$

9. $\triangle XYZ$, where $XY = 12$, $YZ = 24$, and $ZX = 30$

List the sides of each triangle in order from shortest to longest.

10.

11.

12.

13. $\triangle ABC$, with $m\angle A = 90$, $m\angle B = 40$, and $m\angle C = 50$

14. $\triangle DEF$, with $m\angle D = 20$, $m\angle E = 120$, and $m\angle F = 40$

15. $\triangle XYZ$, with $m\angle X = 51$, $m\angle Y = 59$, and $m\angle Z = 70$

Can a triangle have sides with the given lengths? Explain.

16. 2 in., 3 in., 6 in.   17. 11 cm, 12 cm, 15 cm   18. 8 m, 10 m, 19 m

x^2 Algebra The lengths of two sides of a triangle are given. Describe the lengths possible for the third side.

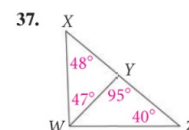22. 8 ft, 12 ft   23. 5 in., 16 in.   24. 6 cm, 6 cm

25. 18 m, 23 m   26. 4 yd, 7 yd   27. 20 km, 35 km

37.

In any triangle, if all you know are the angle measures how can you locate the longest side?
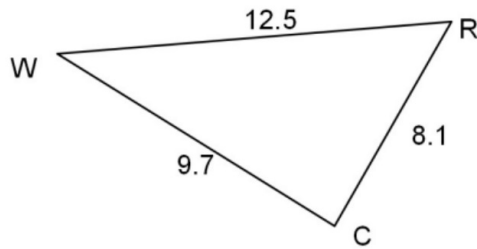
It is opposite the largest angle.

Why is the hypotenuse always the longest side of any right triangle?

It is opposite the right angle and in a right triangle the 90° angle is always the largest angle.
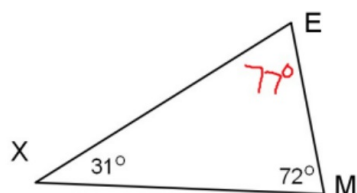
How can you locate the shortest side?

Opposite the smallest angle.

1. List the angles of this triangle in order from smallest to largest.

$\angle W, \angle R, \angle C$

2. List the sides of this triangle in order from shortest to longest.

E

77°

X

31°

72° M

$\overline{EM}$ $\overline{XE}$ $\overline{Xm}$

3. Given the three sides of a triangle and their lengths are:

CK = 29   KT = 21   TC = 17

$\triangle$ CTK

List the angles from smallest to largest

$\angle K, \angle C, \angle T$

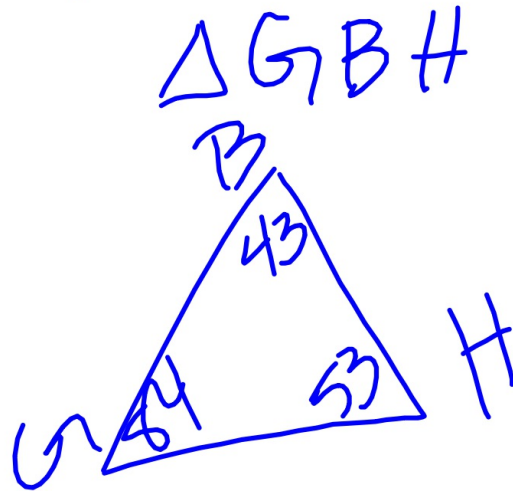4. Given the following measures of angles in a triangle are:

G = 84°   H = 53° $\angle B = 43°$

List the sides in order from shortest to longest if the third vertex is B.

$\overline{GH}, \overline{GB}, \overline{HB}$ $\triangle GBH$
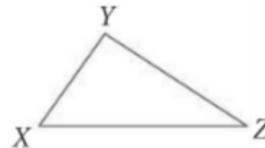
B

43

G 84   53 H

Theorem 5-12   **Triangle Inequality Theorem**

The sum of the lengths of any two sides of a triangle
is greater than the length of the third side.

$XY + YZ > XZ$

$YZ + ZX > YX$

$ZX + XY > ZY$

Y

X   Z

Can a triangle have sides with the following lengths?

1. 13, 20, 8

    Yes

2. 61, 12, 49

    No $49 + 12 > 61$
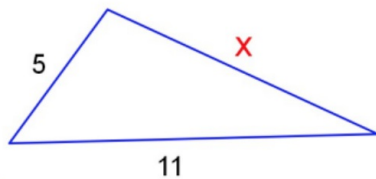
3. 74, 41, 23

    No $41 + 23 > 74$

The lengths of two sides of a triangle are given. Describe the possible lengths of the third side using an inequality.

5 ft   and   11 ft.

5 ─── x
11
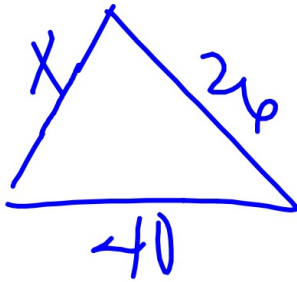
$6 < X < 16$

$5 + X > 11$
$X > 6$

$11 + X > 5$
$X > -6$

$5 + 11 > X$
$X < 16$

The lengths of two sides of a triangle are given. Describe the possible lengths of the third side using an inequality.

40 cm   and   26 cm

$$26 + 40 > X$$
$$X < 66$$

$$X + 26 > 40$$
$$X > 14$$

$$14 < X < 66$$

Classwork: Practice 5.3 & 5.5 Worksheet (due at the end of the hour)

IXL #17 - M.4 & M.5 due Friday at 4pm!