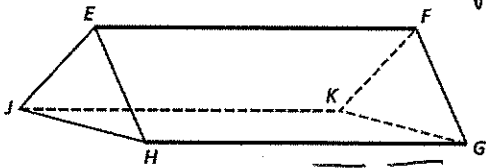Name all segments parallel to $\overline{EF}$. $\overline{HG}$, $\overline{JK}$

Name all segments parallel to $\overline{FG}$. $\overline{EH}$

Name three pairs of skew lines. Answers will vary

Sample answer: $\overline{EF}$ ￡ $\overline{KG}$,
$\overline{EJ}$, $\overline{FG}$
$\overline{JK}$, $\overline{FG}$

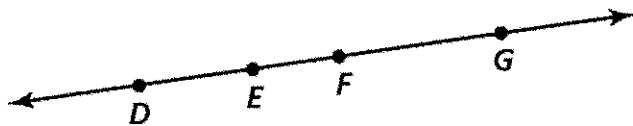Name $\overrightarrow{EF}$ in another way. $\overrightarrow{EG}$

How many different segments can be named? 7

Name a pair of opposite rays with E as an endpoint. $\overrightarrow{ED}$ ￡ $\overrightarrow{EF}$

Name in two different ways the ray opposite $\overrightarrow{FG}$ $\overrightarrow{FE}$, $\overrightarrow{FD}$

Name $\overrightarrow{GE}$ in two other ways. $\overrightarrow{GF}$, $\overrightarrow{GD}$

Are $\overline{EG}$ and $\overline{GE}$ the same segment? yes
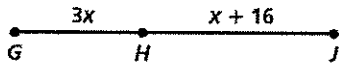

If $GJ = 32$, find the value of each of the following.

$x = 4$

$GH = 12$

$HJ = 20$

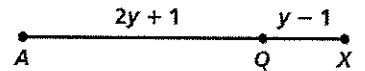$3x + x + 16 = 32$
$4x + 16 = 32$
$4x = 16$
$x = 4$

If $AX = 45$, find the value of each of the following.

$y = 15$

$AQ = 31$

$QX = 14$

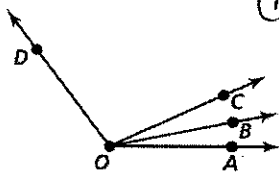$2y + 1 + y - 1 = 45$
$3y = 45$
$y = 15$

---

① Find X
$\angle AOB = x + 3$, $\angle AOC = 2x + 11$, $\angle BOC = 4x - 7$

② $\angle COD = 9x + 4$, $\angle BOC = 4x - 1$, $\angle BOD = 14x - 6$

① $2x + 11 = x + 3 + 4x - 7$
$2x + 11 = 5x - 4$
$11 = 3x - 4$
$15 = 3x$
$x = 5$

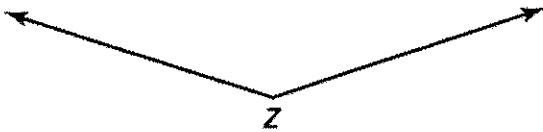② $14x - 6 = 9x + 4 + 4x - 1$
$14x - 6 = 13x + 3$
$x - 6 = 3$
$x = 9$

Construct the perpendicular bisector of $\overline{XY}$.

X ——————————— Y

Construct the angle bisector of $\angle Z$.

Z

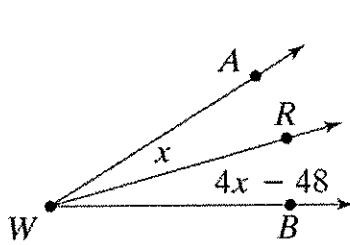$$LM = \sqrt{(-3--4)^2 + (4-11)^2}$$
$$= \sqrt{1^2 + (-7)^2}$$
$$= \sqrt{1+49} = \sqrt{50}$$

$$NP = \sqrt{(3-1)^2 + (8-0)^2}$$
$$= \sqrt{2^2 + 8^2}$$
$$= \sqrt{4+64} = \sqrt{68}$$

Finding Angle Measures $\overleftrightarrow{WR}$ bisects $\angle AWB$ so that $m\angle AWR = x$ and $m\angle BWR = 4x - 48$. Find $m\angle AWB$.

$x = 4x - 48$
$-3x = -48$
$x = 16$

$\boxed{m\angle AWB = 32}$

Find the distance between the points to the nearest tenth.

$L(-4, 11), M(-3, 4)$

$LM = 7.1$

$N(1, 0), P(3, 8)$

$NP = 8.2$

Show that each conditional is false by finding a counterexample:

If it is 12:00 noon, then the sun is shining.

On Jan. 3, 2017, at noon, the sun was not shining

If a number is divisible by 3, then it is odd

6 is divisible by 3 but it is even.

Write the converse of each statement. If the converse is true, write true; if it is not true, provide a counterexample.

If x - 4 = 22, then x = 26
Conv: If $x = 26$, then $x - 4 = 22$

If m^2 is positive, then m is positive.
Conv: If m is positive, then m^2 is pos.
True

If point A is in the first quadrant of a coordinate plane, then x > 0
Conv: If $x > 0$, then point A is in the 1st Quad.
False; (1, -2)

Each condition statement is true. Consider each converse. If the converse is true, write a biconditional.

If two angles have the same measure, then they are congruent.

Two angles have the same measure if & only if they are congruent

If $n = 17$, then $|n| = 17$.

Converse is false; n = -17

Write the two conditional statements that make up each biconditional.

A whole number is a multiple of 5 if and only if its last digit is either a 0 or a 5.
• If a whole # is a multiple of 5, then its last Digit is either a 0 or a 5
• If the last digit of a whole # is 0 or 5, then it is a multiple of 5

Two lines are perpendicular if and only if they intersect to form four right angles.
• If 2 lines are perp, then they intersect to form 4 right ∠'s
• If 2 lines intersect to form 4 right ∠'s, then they are perpendicular

|	
Use the Law of Detachment to draw a conclusion. If the measures of two angles have a sum of 90 degrees, then the angles are complementary. $m<A + m<B = 90$ ∠A � ∠B are complementary If the football team wins on Friday night, then practice is cancelled for Monday. *The football team won by 7 points on Friday night.* practice is cancelled for monday	**Use the Law of Detachment and the Law of Syllogism to draw a conclusion from the following statement.** 1) If it is raining, the temperature is greater than 32 degrees 2) If the temperature is greater than 32 degrees, then it is not freezing outside. 3) It is raining it is not freezing outside 1) If you live in Providence, then you live in Rhode Island 2) If you live in Rhode Island, then you live in the smallest state in the United States. 3) Shannon lives in Providence Shannon lives in the smallest state in the U.S.
Give a reason for each step $0.25x + 2x + 12 = 39$ Given $2.25x + 12 = 39$ Simplify $2.25x = 27$ Subtraction $225x = 2700$ multiplication $x = 12$ Division	**Name the property that justifies each statement** If $10x + 6y = 14$ and $x = 2y$, then $10(2y) + 6y = 14$. Substitution If $TR = MN$ and $MN = VW$, then $TR = VW$. Transitive If $\overline{JK} \cong \overline{LM}$, then $\overline{LM} \cong \overline{JK}$. Symmetric

Find the values of the variables
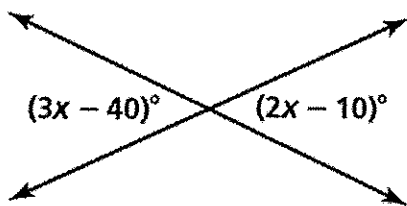
$(3x − 40)°$ $(2x − 10)°$

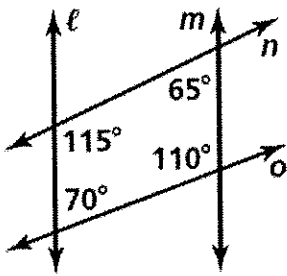$3x - 40 = 2x - 10$
$x - 40 = -10$
$\boxed{x = 30}$

$(7x + 3)°$
$(4x + 1)°$ $65°$
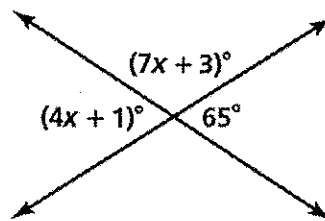
$4x + 1 = 65$
$4x = 64$
$\boxed{x = 16}$

Which lines or segments are parallel?
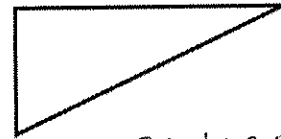**Justify your answer with a theorem or postulate.**

ℓ || m by SSI ∠'s
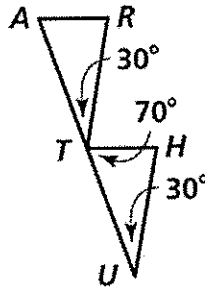
$\overline{RT} || \overline{HU}$ by Corresponding ∠'s
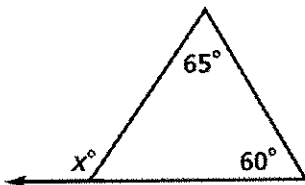
Classify each triangle by its sides and angles

right, scalene
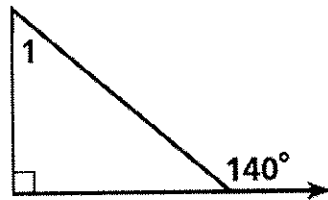

obtuse, isosceles

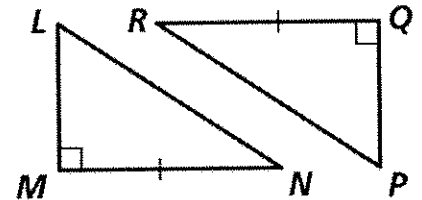**Find the measure of each numbered angle**

X = 125°

m∠1 = 50

X = 35°
Y = 145°
Z = 25°

m∠3 = 22
m∠4 = 22
m∠5 = 88

Tell whether the ASA, AAS, SSS, SAS postulate can be applied to determine if the triangles are congruent.
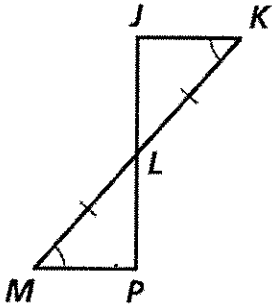

Cannot be Determined
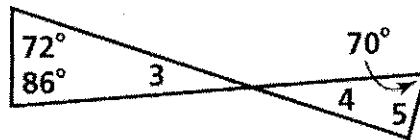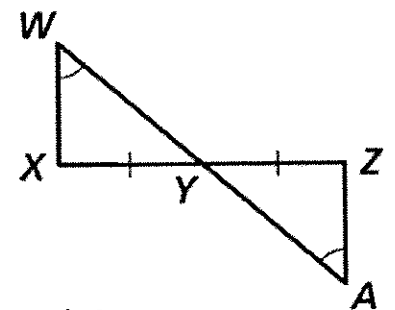
AAS

Write a two-column proof

Given: $\angle K \cong \angle M, \overline{KL} \cong \overline{ML}$
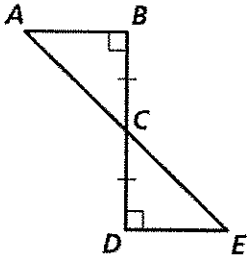
Prove: $\triangle JKL \cong \triangle PML$

Statements	Reasons
① $\angle K \cong \angle M, \overline{KL} \cong \overline{ML}$	① Given
② $\angle MLP \cong \angle KLJ$	② Vertical $\angle$'s
③ $\triangle JKL \cong \triangle PML$	③ ASA

Write a two-column proof

Given: $\overline{BD} \perp \overline{AB}, \overline{BD} \perp \overline{DE}, \overline{BC} \cong \overline{CD}$
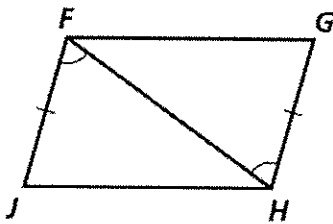
Prove: $\angle A \cong \angle E$

Statements	Reasons
① $\overline{BD} \perp \overline{AB}, \overline{BD} \perp \overline{DE}, \overline{BC} \cong \overline{CD}$	① Given
② $\angle ACB \cong \angle ECD$	② Vertical $\angle$'s
③ $\angle B + \angle D$ are right $\angle$'s	③ Def. of perp.
④ $\angle B \cong \angle D$	④ All right $\angle$'s are $\cong$
⑤ $\triangle ABC \cong \triangle EDC$	⑤ ASA
⑥ $\angle A \cong \angle E$	⑥ CPCTC

Write a two-column proof
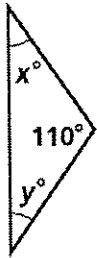
Given: $\overline{FJ} \cong \overline{GH}, \angle JFH \cong \angle GHF$
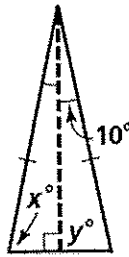
Prove: $\overline{FG} \cong \overline{JH}$

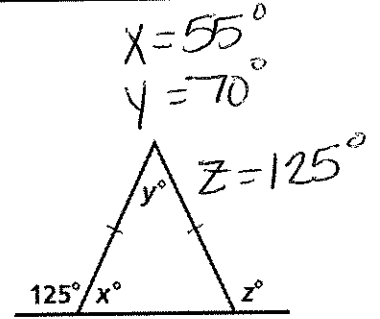| Statements	Reasons
① $\overline{FJ} \cong \overline{GH}, \angle JFH \cong \angle GHF$	① Given
② $\overline{FH} \cong \overline{HF}$	② Reflexive
③ $\triangle FHJ \cong \triangle HFG$	③ SAS
④ $\overline{FG} \cong \overline{JH}$	④ CPCTC

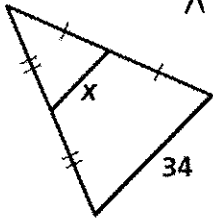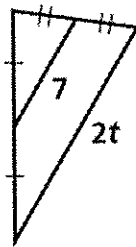**Find the values of the variables:**

$x = 35°$
$y = 35°$

$x°$
$110°$
$y°$

$y = 90°$
$x = 80°$

$10°$
$x°$
$y°$

$x = 55°$
$y = 70°$
$z = 125°$

$y°$
$125° / x°$
$z°$

$x = 17$

x
34

$t = 7$

7
$2t$

Perimeter of $\triangle ABC = 32$ cm

$1\frac{3}{4}n$

A --- B
n
$\frac{1}{2}n$
n
$\frac{7}{8}n$
$2n$
C
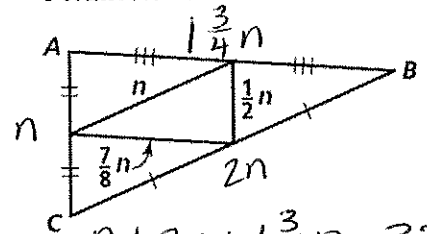
$n + 2n + 1\frac{3}{4}n = 32$
$4\frac{3}{4}n = 32$
$n = 6\frac{14}{19}$

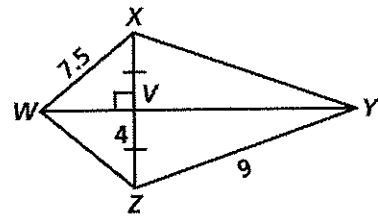**Use the figure to answer the following questions:**

How is $\overline{WY}$ related to $\overline{XZ}$? Perp. bisector

Find XV. 4

Find WZ. 7.5

Find XY. 9

What kind of triangle is $\triangle WXV$? right

X
7.5
W — V — Y
4
9
Z

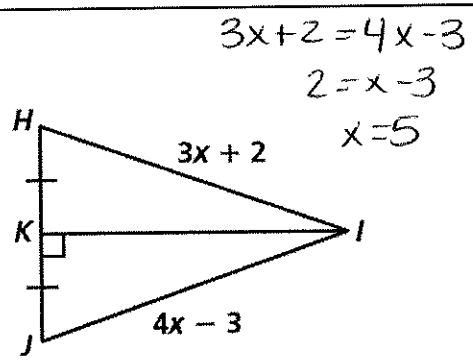**Use the figure to answer the following questions:**

Find the value of x. $x = 5$

Find HI. 17

Find JI. 17

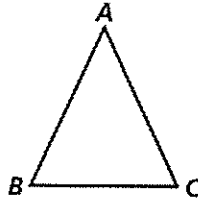If L lies on $\overline{KI}$, then L is __?__ from H and J. equidistant

What kind of triangle is $\triangle HIJ$? Isosceles

$3x + 2 = 4x - 3$
$2 = x - 3$
$x = 5$

H
$3x + 2$
K
I
$4x - 3$
J

Identify the two statements that contradict each other:

Ⓘ $\overline{AB} \cong \overline{BC}$
Ⓘⓘ $m\angle A + m\angle B = 80$
III. $\triangle ABC$ is isosceles.

A

B _____ C

Write the negation of each statement:
- The angle measure is 65°

The ∠ measure is not 65°

- The restaurant is not open on Sunday

The restaurant is open on Sunday

Write the Inverse and Contrapositive of each statement. Give the truth value of each:
- If two triangles are congruent, then their corresponding angles are congruent

In: If 2 △'s are not ≅, then their corr. ∠'s are not congruent   False

Contra: If 2 △'s corr. ∠'s are not congruent, then they are not ≅   True

- If you live in Toronto, then you live in Canada

In: If you do not live in Toronto, then you do not live in Canada   False

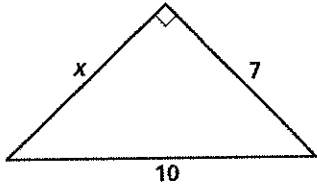Contra: If you do not live in Canada, then you do not live in Toronto   False

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

∠D, ∠S, ∠A

∠N, ∠S, ∠J
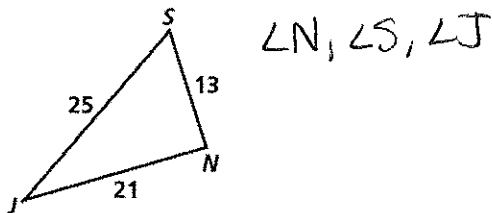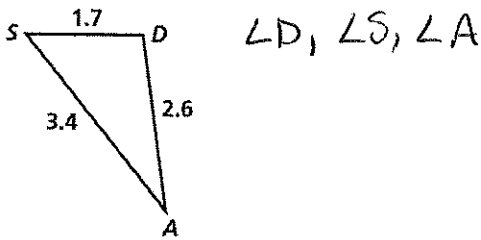
List the sides of each triangle in order from largest to smallest:

$\overline{AC}, \overline{AB}, \overline{BC}$

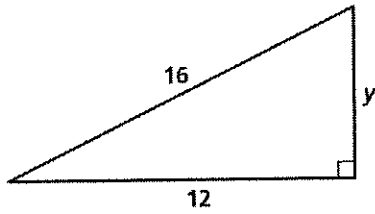$\overline{LO}, \overline{BL}, \overline{OB}$
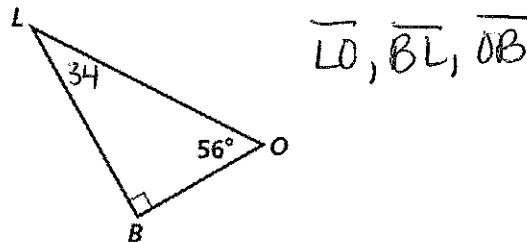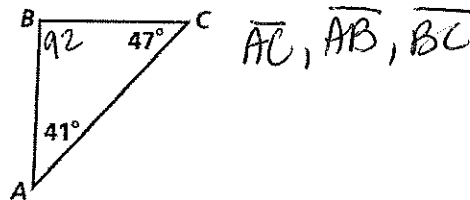
Find the value of each variable. Leave your answer in simple radical form

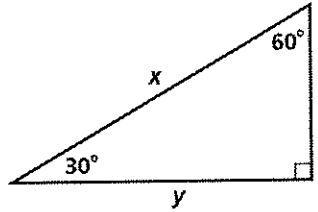$$x^2 + 7^2 = 10^2$$
$$x^2 = 51$$
$$\boxed{x = \sqrt{51}}$$

$$y^2 + 12^2 = 16^2$$
$$y^2 = 112$$
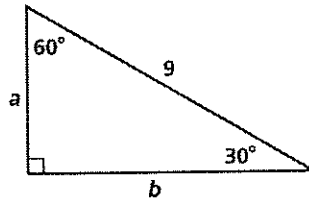$$y = \sqrt{112}$$
$$\boxed{y = 4\sqrt{7}}$$

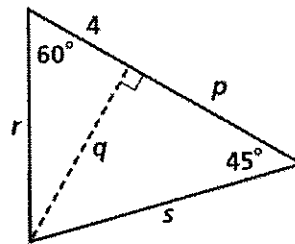**Find the value of each variable. Leave your answers in simple radical form**

$$x = 2$$
$$y = 1\sqrt{3}$$
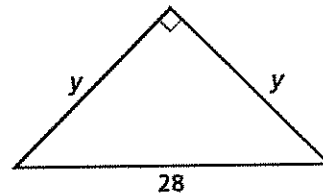
$$a = 4.5$$
$$b = 4.5\sqrt{3}$$

$$r = 8$$
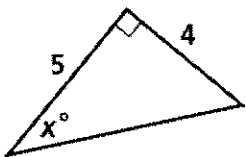$$Q = 4\sqrt{3}$$
$$p = 4\sqrt{3}$$
$$S = 4\sqrt{6}$$

$$28 = y\sqrt{2}$$
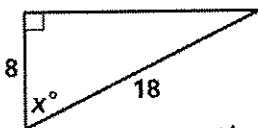$$y = \frac{28}{\sqrt{2}} = \frac{28\sqrt{2}}{2} = 14\sqrt{2}$$

Find the value of x. Round your answer to the nearest degree

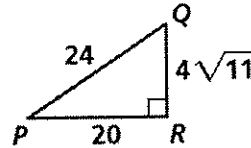$$\tan x = \frac{4}{5}$$
$$x = \tan^{-1}\left(\frac{4}{5}\right)$$
$$\boxed{x = 39°}$$

$$\cos x = \frac{8}{18}$$
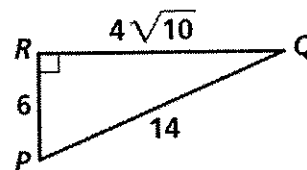$$x = \cos^{-1}\left(\frac{8}{18}\right)$$
$$\boxed{x = 64°}$$

Write the ratios for sin P and cos P

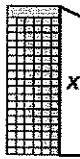$$\sin P = \frac{4\sqrt{11}}{24} = \frac{\sqrt{11}}{6}$$
$$\cos P = \frac{20}{24} = \frac{5}{6}$$

$$\sin P = \frac{4\sqrt{10}}{14} = \frac{2\sqrt{10}}{7}$$
$$\cos P = \frac{6}{14} = \frac{3}{7}$$

Find the value of x. Round the lengths to the nearest tenth.

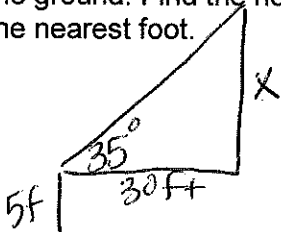$$\text{Tan } 25 = \frac{x}{250}$$

$$x = 250 \text{Tan } 25$$

$$\boxed{x = 116.6 \text{ ft}}$$

250 ft   25°

x

$$\text{Cos } 22 = \frac{300}{x}$$

$$x = \frac{300}{\text{Cos } 22}$$

$$\boxed{x = 323.6 \text{ m}}$$

x
22°
300 m
light
meteorology station

A person is standing 30 ft from a flagpole can see the top of the pole at a 35 degree angle of elevation. The person's eye level is 5 ft from the ground. Find the height of the flagpole to the nearest foot.
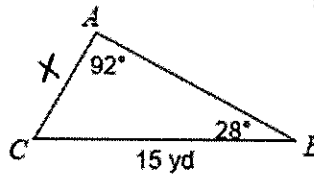
35°   x
5f   30 ft

$$\text{Tan } 35 = \frac{x}{30}$$

$$x = 30 \text{ Tan } 35$$

$$x = 21 + 5 \quad \boxed{\text{Pole} = 26 \text{ ft}}$$

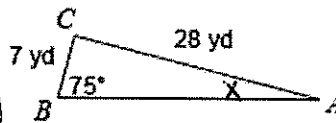
Find the indicated side/angle:

Find AC

A
x / 92°
C
28° B
15 yd

$$\frac{\text{Sin } 28}{x} = \frac{\text{Sin } 92}{15}$$

$$x \text{ Sin } 92 = 15 \text{Sin } 28$$

$$\boxed{x = 7.0}$$

Find angle A

C   28 yd
7 yd
75°   x
B   A

$$\frac{\text{Sin } x}{7} = \frac{\text{Sin } 75}{28}$$

$$28 \text{Sin } x = 7 \text{Sin } 75$$

$$\text{Sin } x = .24148$$

$$\boxed{\angle A = 14°}$$

Find AB

A
27 m   x
80°
C   19 m   B
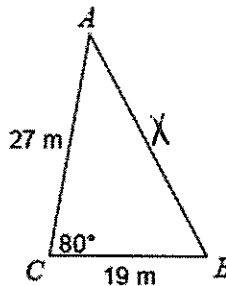
$$x^2 = 27^2 + 19^2 - 2(27)(19)\text{Cos } 80$$

$$x^2 = 1090 - 178;163$$

$$\boxed{x = 30.2 \text{ m}}$$

Find angle A

B
16 mi
117°   x
C   28 mi   A