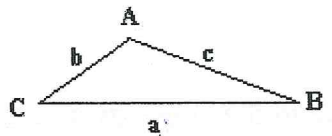# Trigonometry Summary Sheet

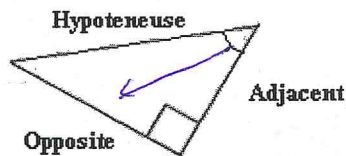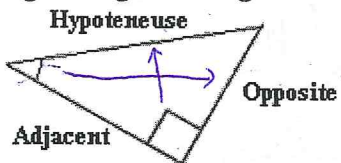## Labelling Triangles

Triangles in General:

Test on Monday (May 11)

Capital letters for angles, and small letters for the opposite sides

Right Angle Triangles:

The adjacent side and opposite side depend on which angle you are using.

Right Angle Triangles	Non-Right Angle Triangles
Pythagorean Theorem $$a^2 = b^2 + c^2$$ where a is the hypotenuse	**Cosine Law** $$a^2 = b^2 + c^2 - 2bc\ \cos A$$ *a, b, c = sides *A = angle Used in: SSS SAS
$$S\frac{O}{H} \quad C\frac{A}{H} \quad T\frac{O}{A}$$ Always label your triangle first with H, O, A	**Sine Law** Solving for a side: $$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$ Solving for an angle: $$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$ Used in: SSA AAS (whenever you have 2 angles)

If you don't know the angle,   **WARNING: Make sure calculator is in *degrees*.**
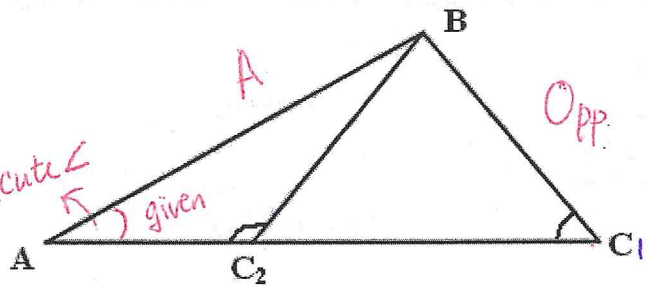
$\sin x = 0.722$
$\quad x = \sin^{-1}(0.722)$
$\quad x = 46°$

Sine Law Ambiguous Case:
-occurs when the **side opposite to the angle given** is <u>smaller</u> than the side adjacent to the angle.
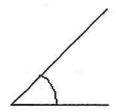
$A > O_{pp}$

$C_2 = 180 - C_1$

must be acute∠

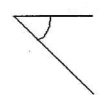given

(triangle diagram with vertices A, B, C_1, C_2; labels A, Opp.)

There are two possible Angle C values, for two different triangles. One of the triangles is an obtuse triangle, one is an acute.

This is an angle of elevation: **This is an angle of depression:**

Geometry Theorems: (fill in all the missing ones)

Opposite Angle Theorem   **Supplementary Angle Theorem**   **Isosceles Triangle**

x x y $180° - x$ y x

$∠x = ∠y$ $y = 180 - x$

a b $∠A = ∠B$
B C A $a = b$

Parallel Lines
Corresponding Angles   **Co-interior Angles**   **Alternate Angles**

Parallel Lines

x x y x

x y $180° - x$ x x y

$∠x = ∠y$ $∠x = ∠x$
$∠y = ∠y$
$∠x = ∠y$

you face
South then
turn 7°
to the East.

Compass Points (Draw the examples)

S7°E (7° East of South)	N10°W (10° West of North)	E46°N (46° North of East)	W30°S (30° South of West)
7°	10°	46°	30°