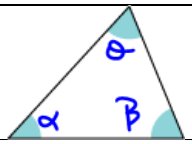
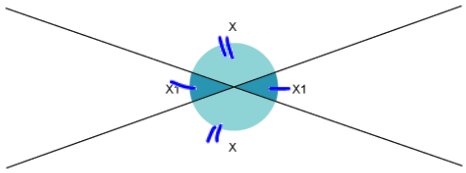
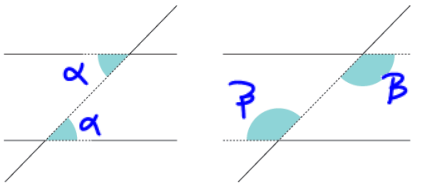
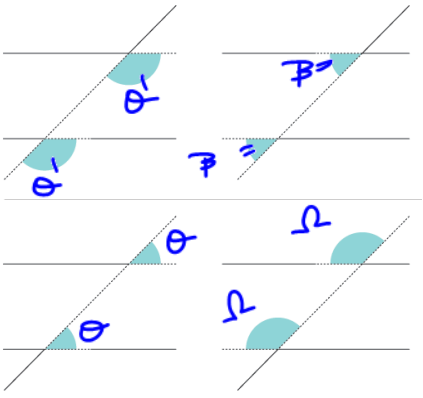
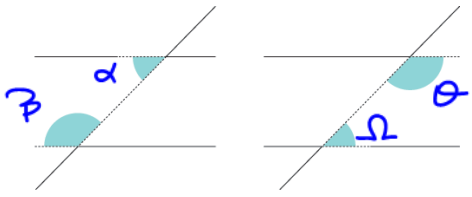
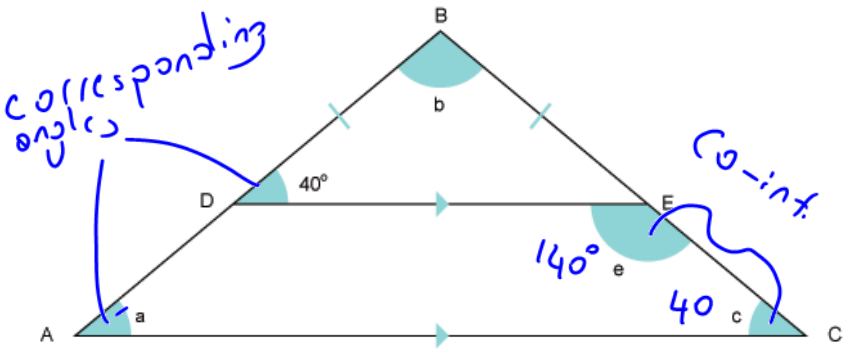
What's Your Angle?

α = alpha β = beta θ = theta Ω = omega

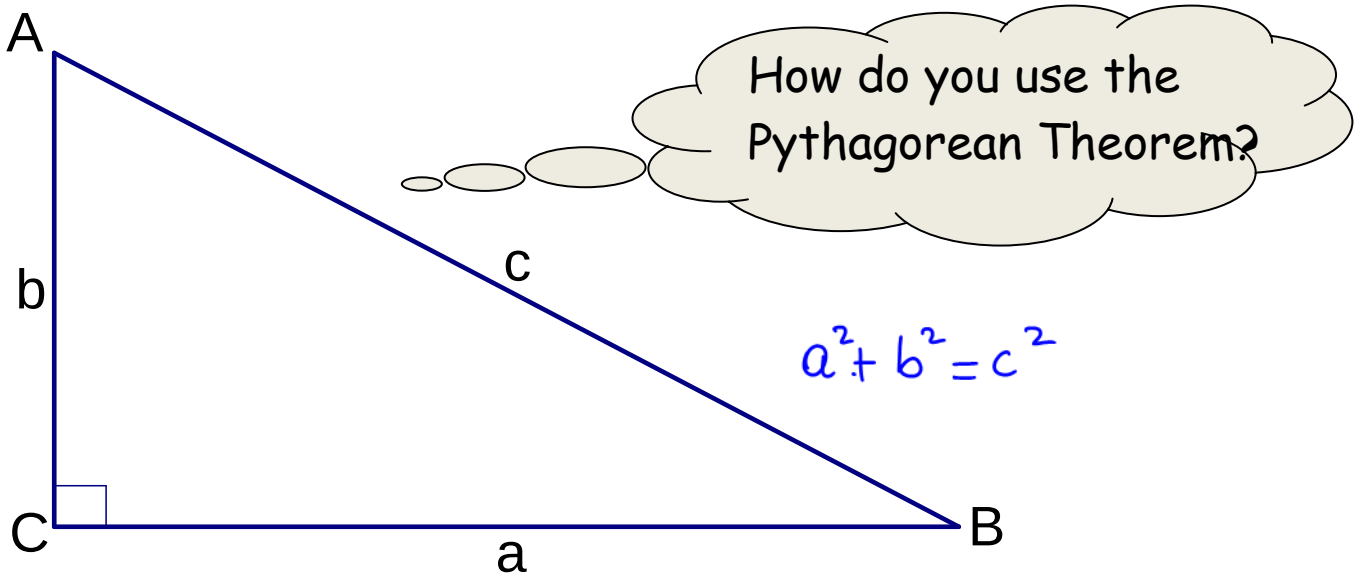
Whatcha Need ta Know!

Triangle Interior Angles		$\alpha+\beta+\theta=180^\circ$
Vertically Opposite Angles		They're equal.
Alternate Angles (on Parallel Lines)		alternate angles are equal on parallel lines.
Corresponding Angles (on Parallel Lines)		Corresponding angles are equal.
Co-Interior Angles (on Parallel Lines)		$\alpha+\beta=180^\circ$ $\theta+\Omega=180^\circ$

EG:



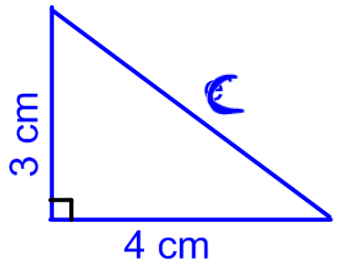
Angle	Value	Why?
a	40°	corresponding angles
b	180−(40+40)=100	sum of interior angles 180°
c	180−140=40°	co-interior angles
d	40	given info
e	180−40=140°	supplementary angles



$c^2 = 3^2 + 4^2$

$e^2 = 15^2 - 9^2$

When c is unknown:



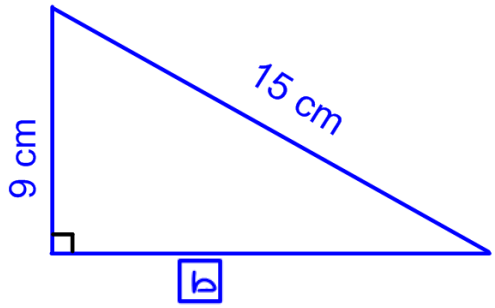
$c^2 = 3^2 + 4^2$

$c^2 = 9 + 16$

$\sqrt{c^2} = \sqrt{25}$

$c = 5$

When a or b is unknown:



$b^2 = 15^2 - 9^2$

$b^2 = 225 - 81$

$\sqrt{b^2} = \sqrt{144}$

$b = 12$

The Right Proportions!

$\frac{3}{5}=\frac{a}{15}$ cross multiply $3\cdot 15=5a$ $\frac{45}{5}=\frac{5a}{5}$ $\boxed{a=9}$	$\frac{26}{5}=\frac{182}{x}$ $26x=5\cdot(182)$ $\frac{26x}{26}=\frac{910}{26}$ $\boxed{x=35}$	$\frac{4}{x}=\frac{5}{7}$ $4\cdot 7=5\cdot x$ $\frac{28}{5}=\frac{5x}{5}$ $\boxed{x=5.6}$
$\frac{6}{15}=\frac{2n}{25}$ $6\cdot 25=15\cdot 2n$ $\frac{150}{30}=\frac{30n}{30}$ $\boxed{n=5}$	$\frac{x+1}{15}=\frac{6}{10}$ $10(x+1)=6\cdot 15$ $10x+10=90$ $10x=90-10$ $\frac{10x}{10}=\frac{80}{10}$ $\boxed{x=8}$	$\frac{2}{x+2}=\frac{12}{30}$ $2\cdot 30=12(x+2)$ $60=12x+24$ $60-24=12x$ $\frac{36}{12}=\frac{12x}{12}$ $\boxed{x=3}$
$\frac{10}{w+4}=\frac{6}{w}$ $10w=6(w+4)$ $10w=6w+24$ $10w-6w=24$ $\frac{4w}{4}=\frac{24}{4}$ $\boxed{w=6}$	$\frac{3}{x+5}=\frac{10}{5x}$ $3\cdot 5x=10(x+5)$ $15x=10x+50$ $15x-10x=50$ $5x=50$ $\boxed{x=10}$	$\frac{-1}{x+3}=\frac{x-5}{12}$ $-1\cdot 12=(x-5)(x+3)$ $-12=x^2+3x-5x-15$ $-12=x^2-2x-15$ $0=x^2-2x-15+12$ $0=x^2-2x-3$ $0=(x+1)(x-3)$ $x=-1 \quad x=3$ $\{-1,3\}$