October 25, 2010

Note Title 10/25/2010

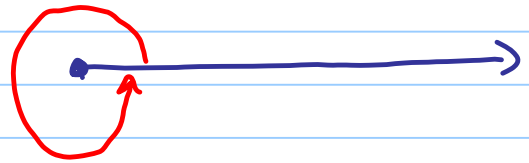
96	96	96	97	97	97	98	98	100			
90	90	91 *	91	91	93	93	93	94	94	95	
80	81	81	84	86	87						
70	74	75	75								
62	64										
52											
22											

$\bar{x} = 84.9$

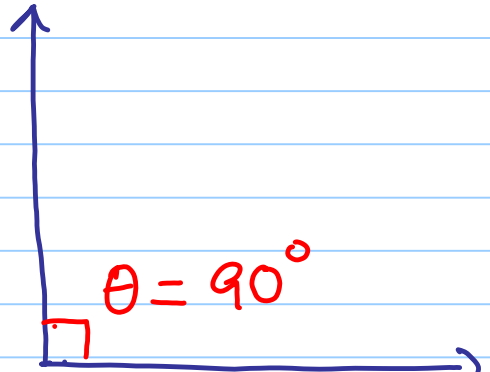
$s_x = 16.09$

$n = 34$

§ 6.1 Angles

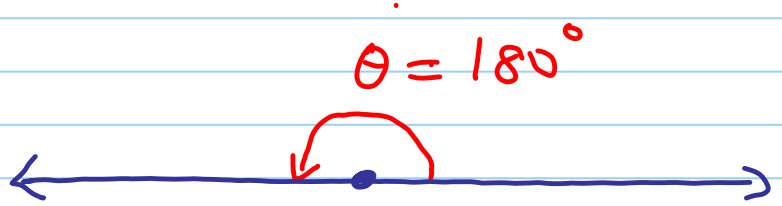


360° Complete rotation Counter clockwise



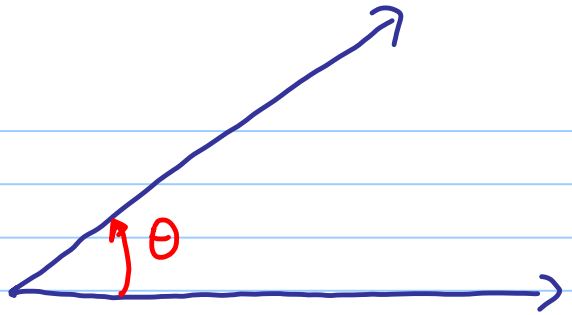
$\theta = 90°$

right angle



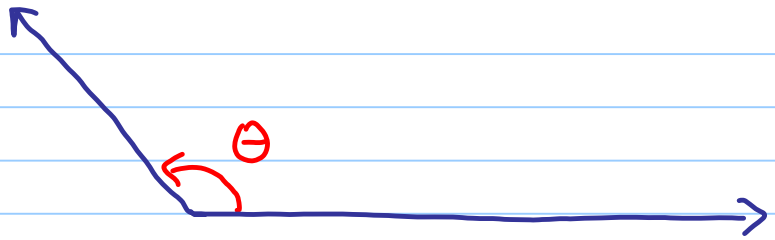
$\theta = 180°$

straight angle : half rotation



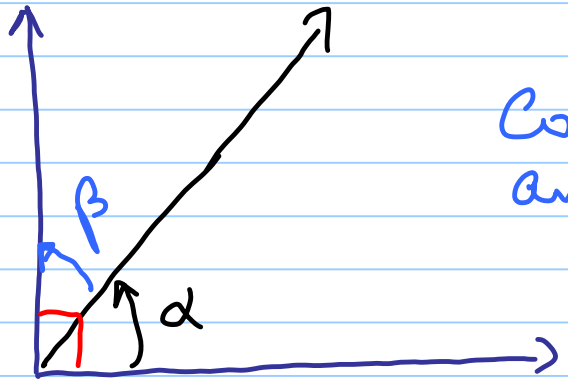
acute angle

$0^\circ < \theta < 90^\circ$



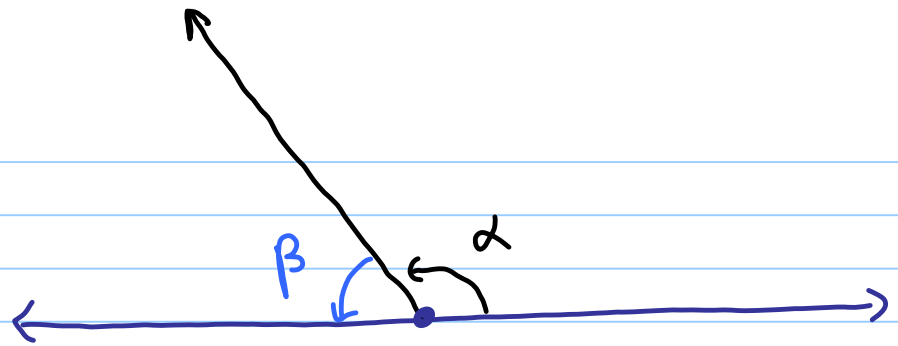
obtuse angle

$90^\circ < \theta < 180^\circ$



Complementary angles

$$\alpha + \beta = 90^\circ$$



Supplementary angles

$$\alpha + \beta = 180^\circ$$

Example Find

a) Complement of 50°

$$\alpha + 50^\circ = 90^\circ \quad \Rightarrow \quad \boxed{\alpha = 40^\circ}$$

b) Supplement of $110°$.

$$110° + \beta = 180°$$

$$\beta = 70°$$

c) Represent the complement of α in terms of α.

Let β be the complement of α.

$$\alpha + \beta = 90°$$

$$\boxed{\beta = 90° - \alpha}$$

d) Find two supplementary angles such that the first is twice as large as the second angle.

Two supplementary angles α and β.

$$\alpha + \beta = 180^\circ$$

Given $\alpha = 2\beta$

So $2\beta + \beta = 180^\circ$

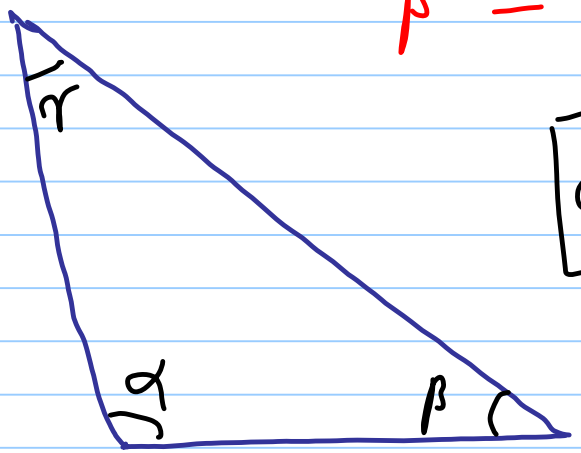
$$3\beta = 180^\circ$$

$\Rightarrow \beta = 60°$.

The two angles are $\alpha = 120°$

$\beta = 60°$

Triangles



$$\alpha + \beta + \gamma = 180°$$

Example

If two angles of a triangle measure $32°$ and $68°$, what is the measure of the third angle?

$$\alpha + \beta + \gamma = 180°$$

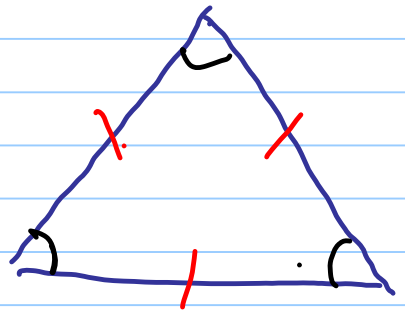
$$32° + 68° + \gamma = 180°$$

$$100° + \gamma = 180°$$

$$\boxed{\gamma = 80°}$$

Special triangles

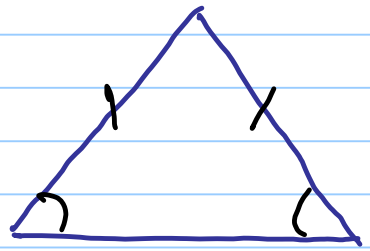
Equilateral triangle



three sides equal

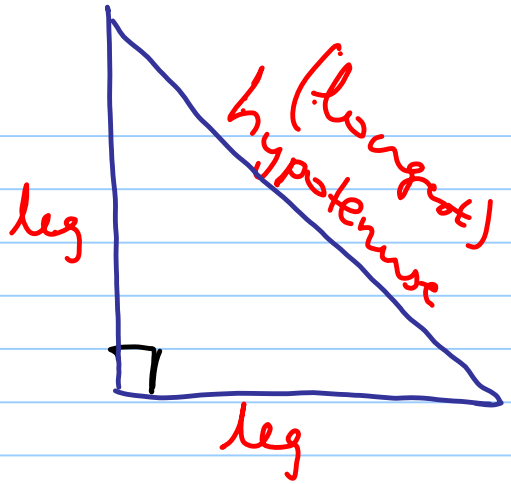
three angles equal.

Isosceles triangle:



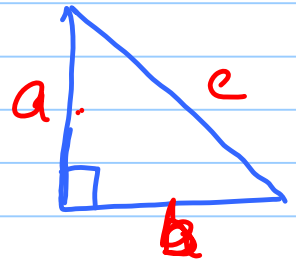
two sides equal

two angles equal



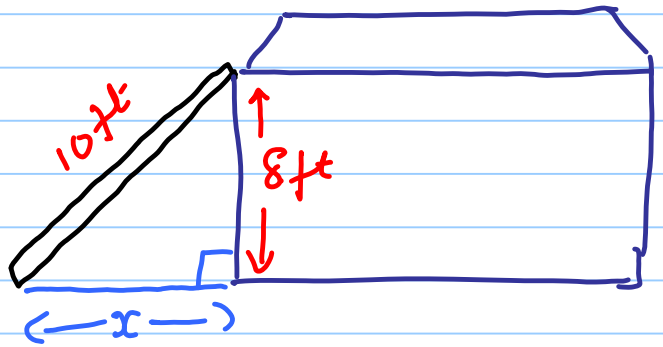
Right triangle

Pythagorean theorem

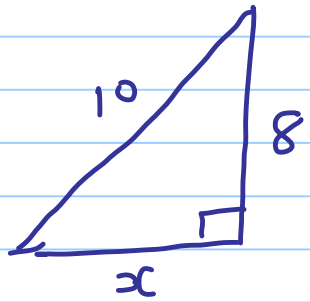


$$a^2+b^2=c^2$$

Example



Find



$x^2 + 8^2 = 10^2$

$x^2 + 64 = 100$

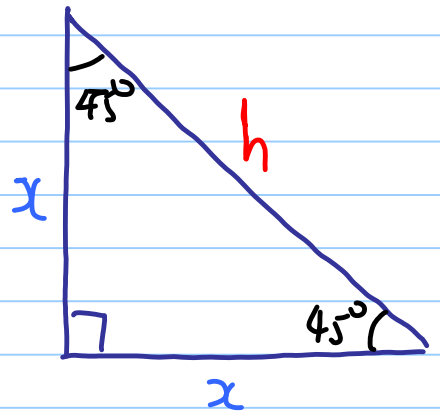
$x^2 = 36$

$x = \pm 6$

Find the ladder is 6 ft.

Special Right Triangles

- $45° - 45° - 90°$



What is h in terms of x?

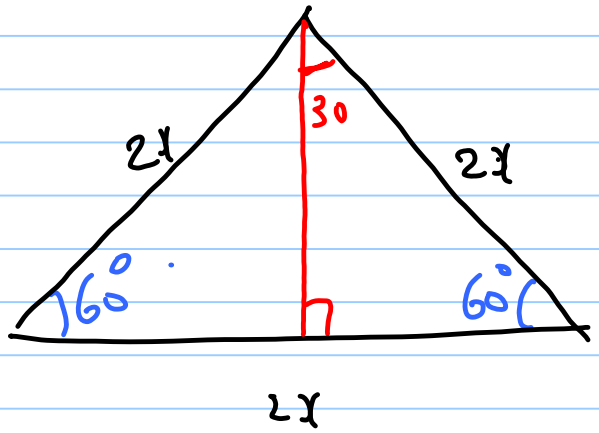
$$x^2 + x^2 = h^2$$

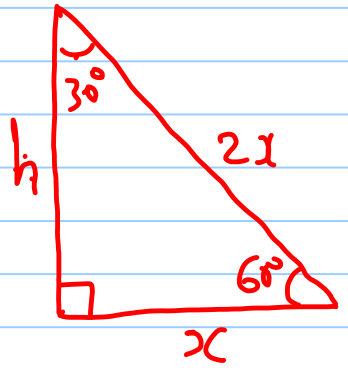
$$2x^2 = h^2$$

$$\boxed{h = \sqrt{2}\,x}$$

- the $30^\circ - 60^\circ - 90^\circ$

Start with equilateral triangle with sides $2x$





$$h^2 + x^2 = (2x)^2$$

$$h^2 = 4x^2 - x^2$$

$$= 3x^2$$

$$\therefore h = \sqrt{3}x$$