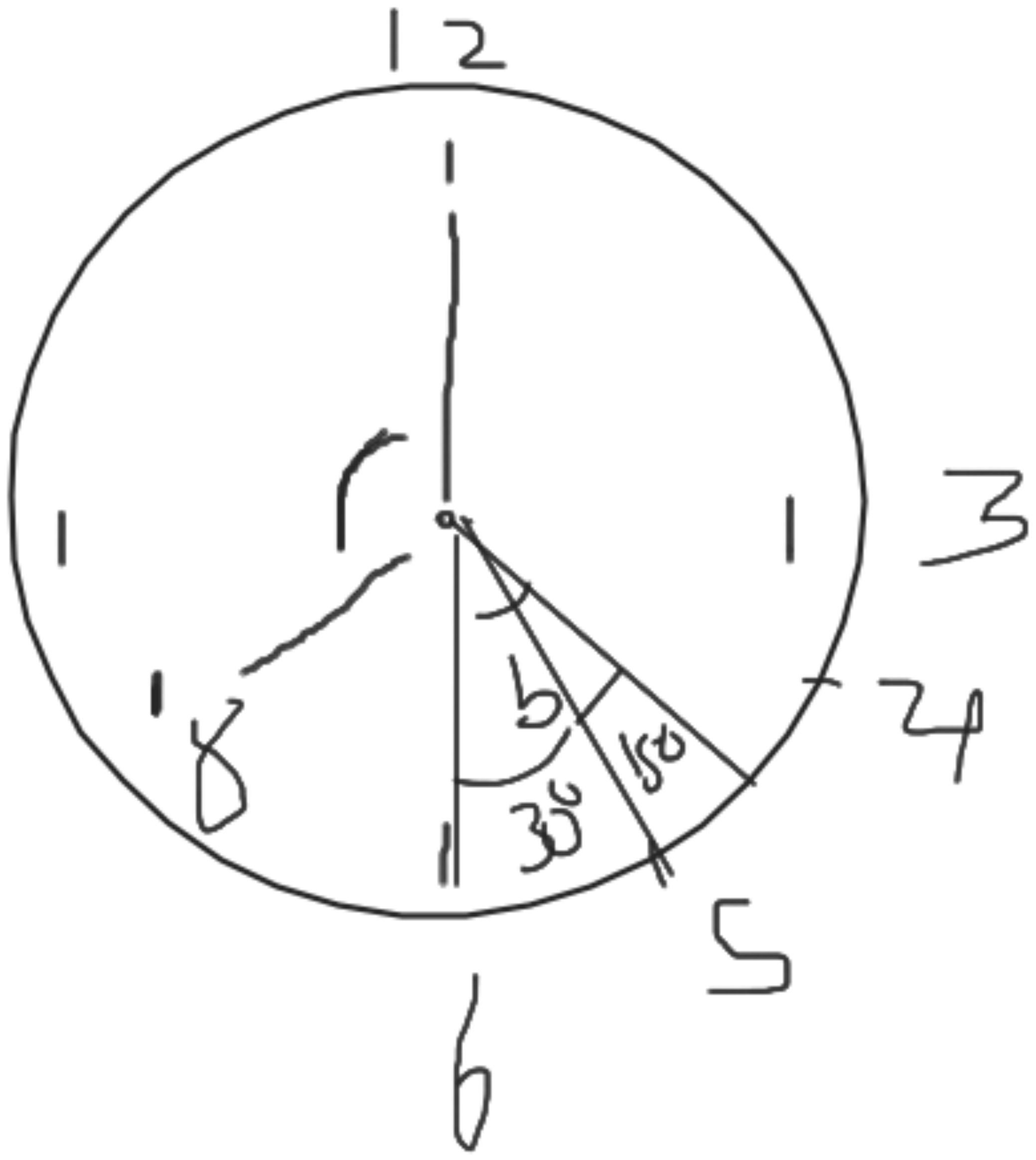
$b = 45^\circ$

$$\frac{360^\circ}{12} = 30^\circ$$

$$4(30^\circ) = 120^\circ$$



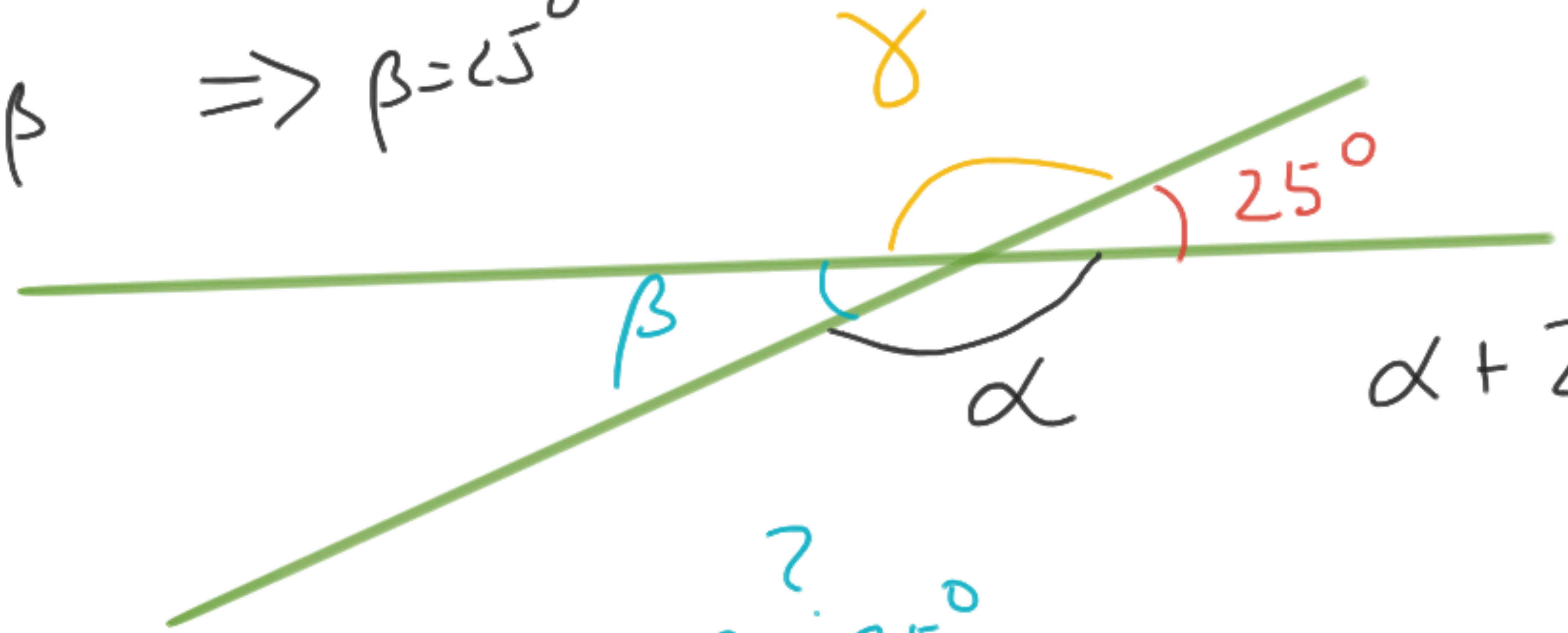
Calula los otros 3 ángulos

$\gamma + 25^\circ = 180^\circ$

$\gamma = 155^\circ$

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

$\underset{155^\circ}{\underset{\parallel}{\alpha}} + \beta \Rightarrow \beta = 25^\circ$



$\alpha + 25^\circ = 180^\circ$

$\alpha = 155^\circ$

$\beta \overset{?}{=} 25^\circ$

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

$360^\circ - 205^\circ = \alpha$

$\alpha = 155^\circ$

$360^\circ = \alpha + \beta + \gamma + 25^\circ = 205^\circ + \alpha$

1.15 Finding a pair of angles using two unknowns

For each of the following, be represented by a and b. Obtain two equations for each case, and then find the angles.

(a) The angles are adjacent, forming an angle of 88°. One is 36° more than the other.

(b) The angles are complementary. One is twice as large as the other.

(c) The angles are supplementary. One is 60° less than twice the other.

(d) The angles are supplementary. The difference of the angles is 24°.

a) a sumado con b es 88°. a es 36° más que el otro. Encuentra a y b

$$\left.\begin{aligned} a+b&=88 \\ a&=b+36 \end{aligned}\right\}$$

$$\begin{array}{rl} & a+b=88 \\ + & a-b=36 \\ \hline & 2a = 124 \end{array} \Rightarrow \begin{aligned} a&=62 \\ b&=26 \end{aligned}$$

1.7. Find (a) $\frac{5}{6}$ of a rt. $\angle$; (b) $\frac{2}{9}$ of a st. $\angle$; (c) $\frac{1}{3}$ of $31°$; (d) $\frac{1}{5}$ of $45°55'$.

a) Escribe en grados, minutos y segs
$5/6$ de un ángulo recto. $= 75°$

d) $9° 11'$

$$\frac{1}{5}\, 45° 55'$$
$$\parallel$$
$$\frac{1}{5}(45° + 55')$$

c) $31° = 30° + 60'$

$$\frac{1}{3}(30° + 60') = 10° + 20' \checkmark$$

1.6. (a) Find $m\angle ADC$ if $m\angle c = 45°$ and $m\angle d = 85°$ in Fig. 1-53. 130^0

(b) Find $m\angle AEB$ if $m\angle e = 60°$. 120^0

(c) Find $m\angle EBD$ if $m\angle a = 15°$. 75^0

(d) Find $m\angle ABC$ if $m\angle b = 42°$. 132^0

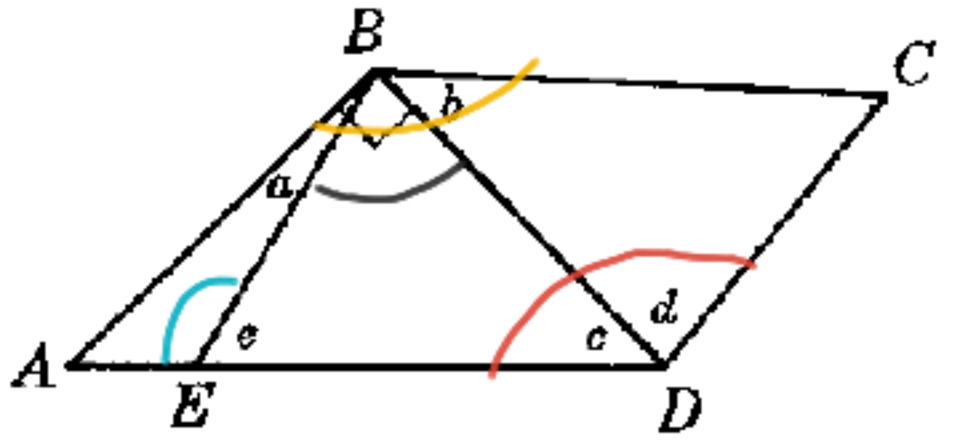


Fig. 1-53

a y b son complementarios, y a es el doble de b

$$\left.\begin{array}{r} a+b=90^\circ \\ a=2b \end{array}\right\}$$

$\cancel{a=46}$
$\cancel{b=44}$

$b=30$
$a=60^\circ$ ✓

$$\underset{\overset{\|}{3b}}{2b+b}=90^\circ \Rightarrow b=30^\circ$$

5. Calcula el número más pequeño de ángulos agudos (obtusos) cuya suma sea 360º (esto es, el ángulo completo que subtiende todo un círculo). 5

Con 4 no se puede: $360^\circ/4 = 90^\circ$

tienes 4 $\alpha_1, \alpha_2, \alpha_3$ y α_4

y $\alpha_i < 90^\circ$ $\Rightarrow \alpha_1+\alpha_2+\alpha_3+\alpha_4 < 4 \cdot 90^\circ = 360^\circ$ ✓

9 de 40

5 de 72° cada uno porque $5 \times 72 = 360$

$80+80+80+80+40^\circ$ ✓

$70+70+70+70+80^\circ$ ✓

Número más pequeño de ángulos obtusos que sumen 360° 3

3 de 120° ✓

¿Y con 2? no se puede

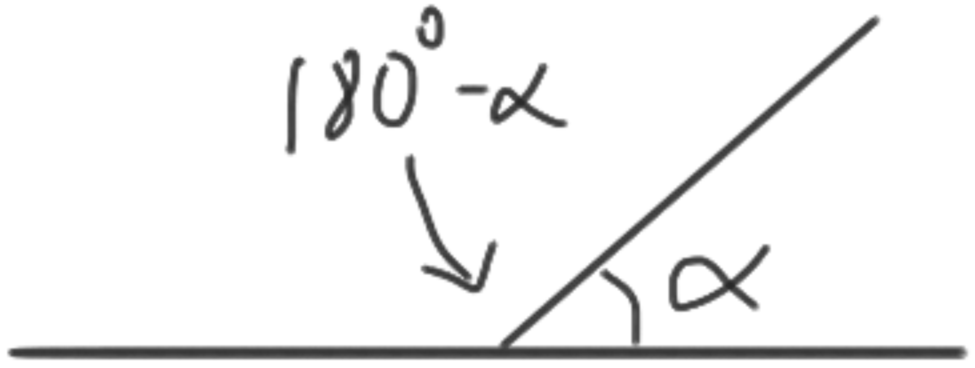
$\alpha + \beta = 360^\circ$ $\alpha \geq \beta$

$2\alpha = \alpha + \alpha \geq \alpha + \beta = 360^\circ$

$\alpha \geq 180^\circ$ no es obtuso

6. ¿Cuánto mide un ángulo que es congruente al doble de su ángulo suplementario?

$$\alpha = 2(180^\circ - \alpha) = 360^\circ - 2\alpha$$



$$\underset{3\alpha}{\underset{\parallel}{\alpha+2\alpha}} = 360^\circ$$

$$\underline{\alpha = 120^\circ}$$