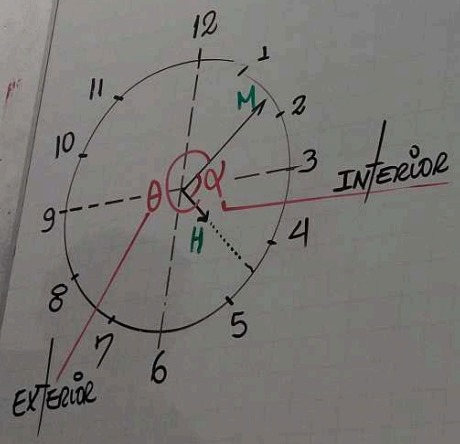
ÁNGULOS FORMADOS POR LAS AGUJAS DEL RELOJ



$$\alpha = \left| 30H - \frac{11}{2}M \right|$$

$$\alpha + \theta = 360^\circ$$

QUE ÁNGULO FORMAN LAS MANECILLAS DEL RELOJ

9:20

$$\alpha = \left| 30(9) - \frac{11}{2}(20) \right|$$

$$\alpha = 160^\circ$$

$$\theta = 200^\circ$$

CUIDADO

12:40

$$\alpha = \left| 30(0) - \frac{11}{2}(40) \right|$$

$$\alpha = 220^\circ$$

$$\theta = 140^\circ$$

13) $Q = 123 \rightarrow \theta = 237$

9:X

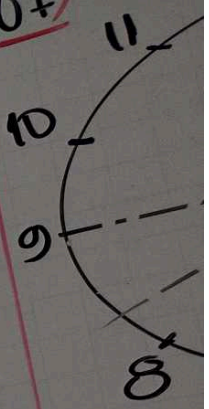
$$237 = 30(9) - \frac{11}{2}X$$

$$\frac{11}{2}X = 33$$

$$X = 6$$

$$= 9:6$$

07)



θ=

40

$0(0) - \frac{11}{2}(40)|$

$0°$

$°$

$3 \rightarrow \theta = 237$

x

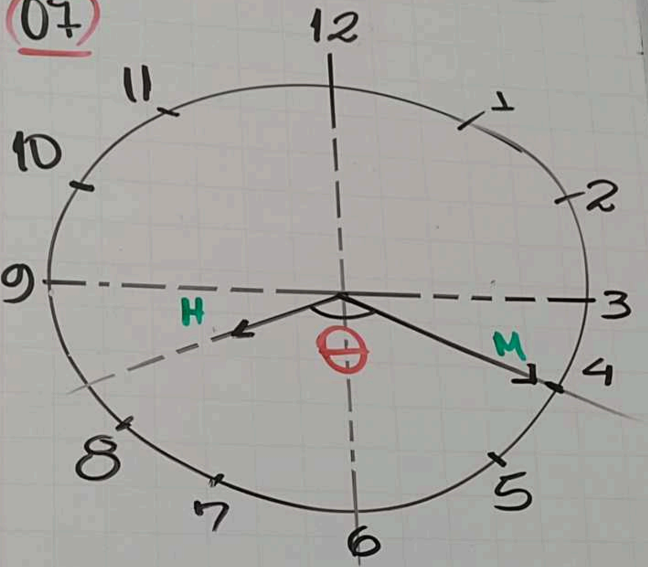
$(9) - \frac{11}{2}x$

3

5

$0:6$

07



$8:20$

$\theta = |30(8) - \frac{11}{2}(\cancel{20})|$ (10)

$\theta = 130°$

Agujas superpuestas

$\alpha = 0°$

$30H = \frac{11}{2}M$

A qué hora entre las 3 y 4 las agujas se superponen

$3:x$

$30(3) = \frac{11}{2}x$

$180 \,|\, 11$

$70 \quad 16$

4

$3:16\frac{4}{11}$

Cada cuánt...
del reloj

B

A...

...TAS

...E LAS 3 Y 4 LAS
...ERPONEN

$\frac{11}{2}X$

6

$\frac{4}{11}$

CADA CUÁNTO TIEMPO LAS AGUJAS DEL RELOJ SE SUPERPONEN

$30H = \frac{11}{2}M$

$30(1) = \frac{11}{2}M$

60 | 11
5 5

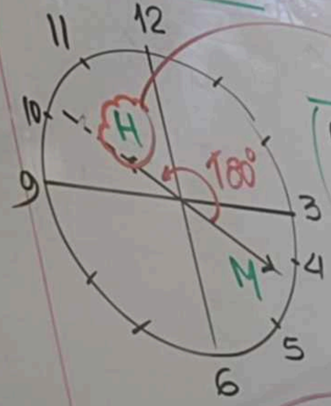
$1:55\frac{5}{11}$

B

A) $1:2\frac{3}{11}$ B) $1:5\frac{7}{11}$ C) $1:5\frac{5}{11}$

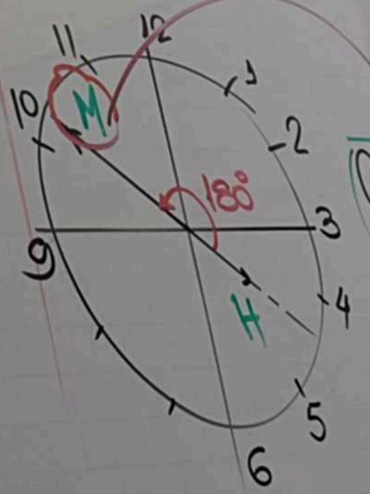
$\frac{5}{10}$ $\frac{12}{10}$ $\frac{10}{10}=1$

AGUJAS OPUESTAS LÍNEA RECTA



$\alpha = 30H - \frac{11}{2}M$

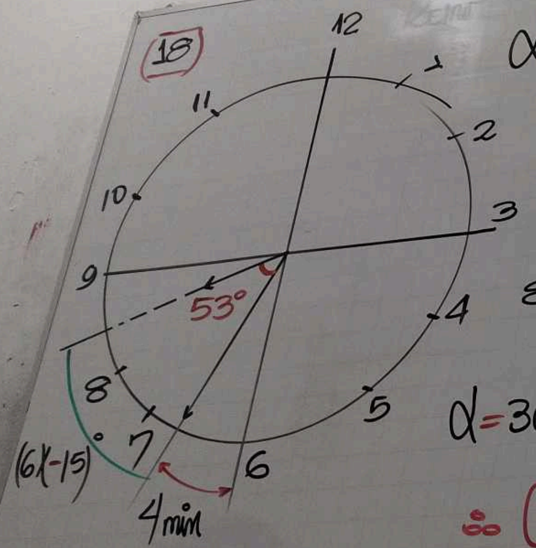
1ERO VEZ



$\alpha = \frac{11}{2}M - 30H$

2DO VEZ

(18)



8:34

$\alpha = 30(8) - \frac{11}{2}(34)$ 17

$\alpha = 53°$

$6x - 15 = 53$

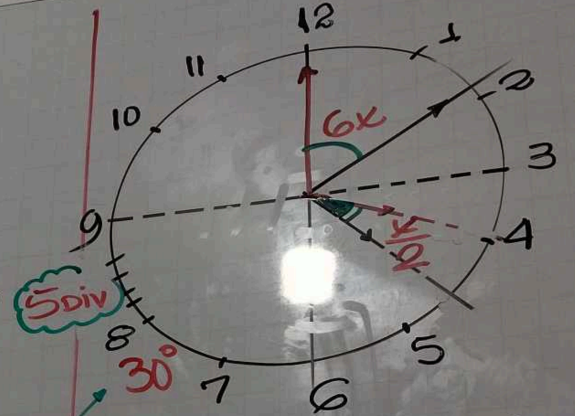
$6x = 68 = 1:08$

$8:34 + 1:08$

$9:42$

$\alpha = 30(9) - \frac{11}{2}(42)$ 21

$\therefore \alpha = 39°$



$360° \div 12$ — 30°

$1H = 5 \times 12$

60min

$4 : X$

Luego:

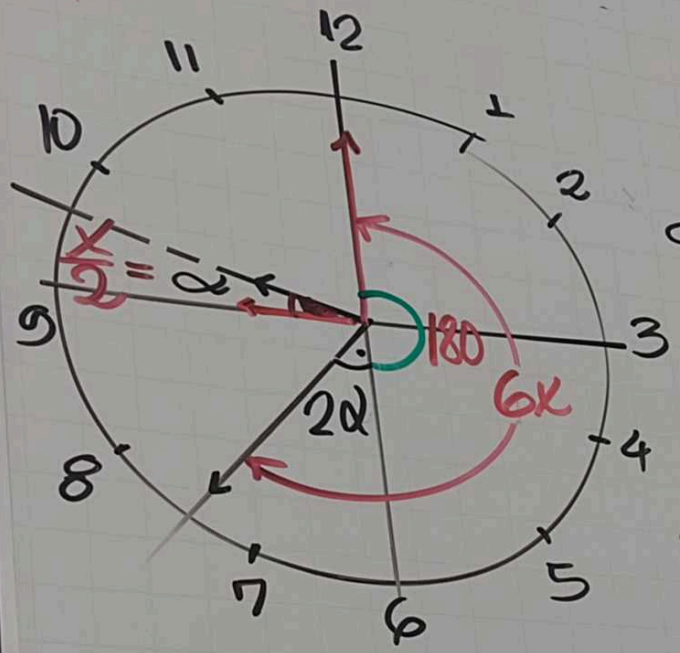
	$\measuredangle H$	$\measuredangle M$
1H		
60'	30°	360°
1'	$(\frac{1}{2})°$	6°
Xmin	$(\frac{x}{2})°$	$(6x)°$

÷60 ; ×2

TAMBIEN:

$$\frac{H}{M} = \frac{1}{12}$$

11



9:15

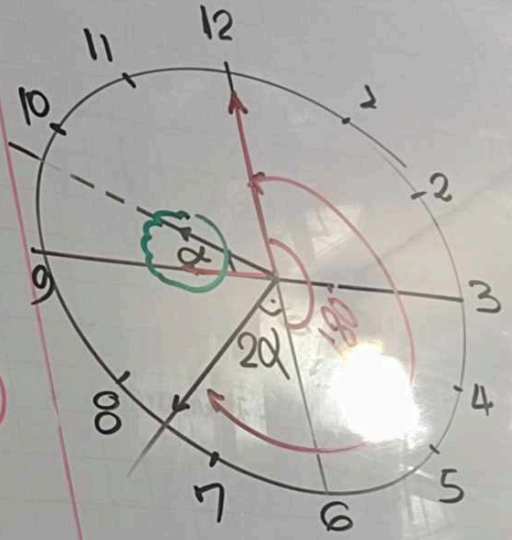
9:36

$6x = 180° + 2\alpha$

$6x = 180° + 2\left(\frac{x}{2}\right)$

$5x = 180$

$x = 36°$



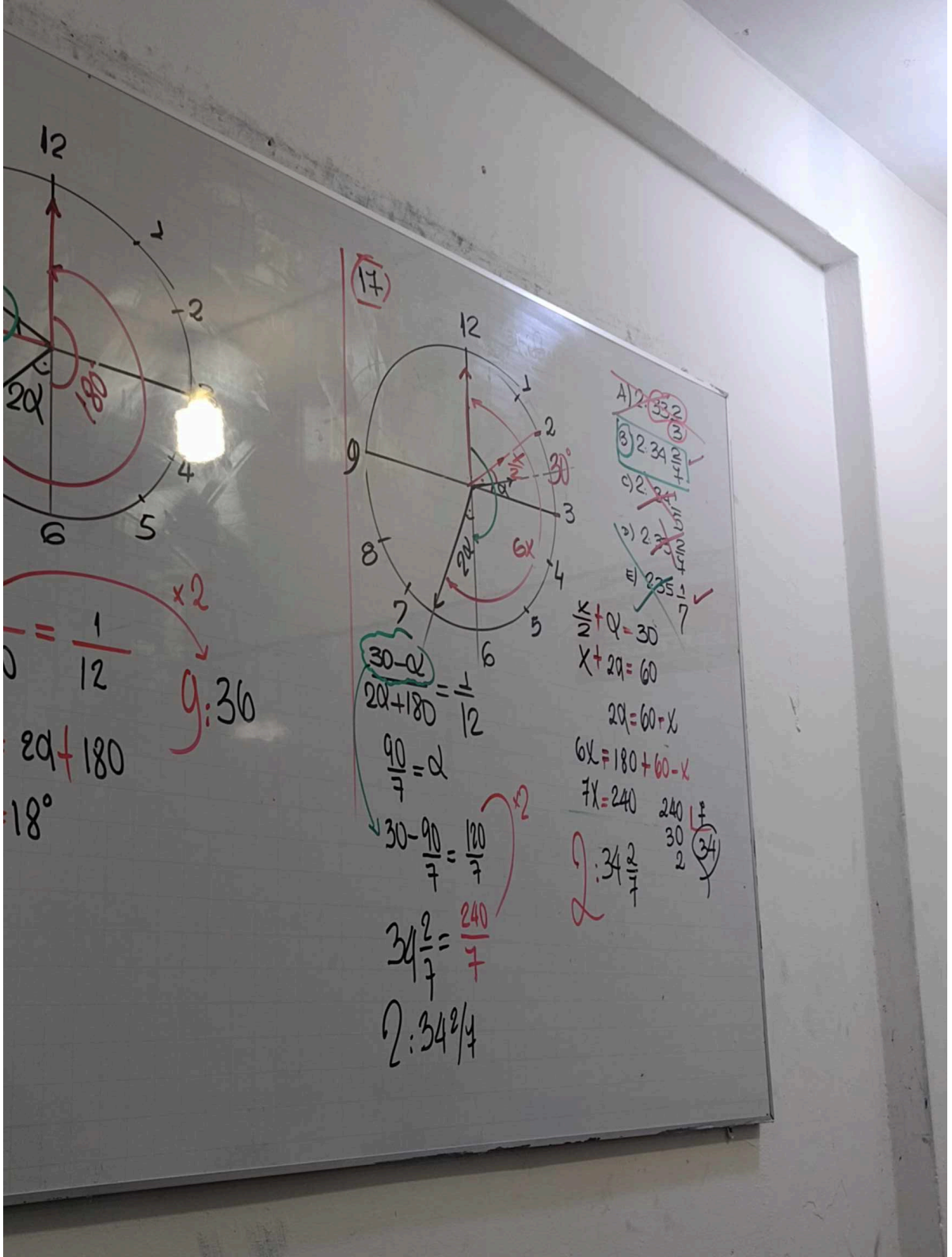
$\frac{\alpha}{2\alpha + 180} = \frac{1}{12}$ ×2

9:36

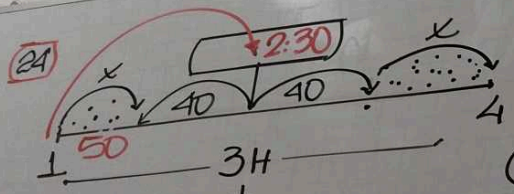
$12\alpha = 2\alpha + 180$

$\alpha = 18°$

17


12
1
2
4
5
6
2α
180
×2
= 1/12
9:36
2α + 180
= 18°
17
12
1
2
3
4
5
6
7
8
9
30
6x
2α
30-α
2α+180 = 1/12
90/7 = α
30 - 90/7 = 120/7
×2
240/7
34 2/7
2:34 2/7
A) 2:33
3) 2:34 2/7
x/2 + α = 30
x + 2α = 60
2α = 60 + x
6x = 180 + 60 - x
7x = 240
240
30
2
34

24



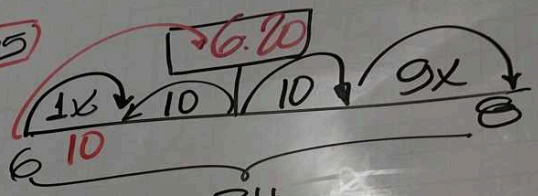
$2x+80=180$

$x=50$

$Q=|30(2)-\frac{11}{2}(30)|$

$Q=105°$

25



1x / 9x

$10x+20=120$

$x=10$

27

C	I	T
3	2	7
7	6	x

$2x=42$

$x=21$

26

$x=\frac{12-x}{2}+\frac{2}{3}x$

$6x=36-3x+4x$

$5x=36$

$x=7\frac{1}{5}(60_{min})$

$x=7:12$

(29)

C	I	T
5	4	8
X	X − 1	20

$8(X-1) = 80$

$X = 11$ pm

C	I	T
5	4	8
y	y − 1	10

$8(y-1) = 40$

$y = 6$ am

(7)

RECUERDA

$$C = \frac{T}{T_{c/c}} + 1$$

$C = 10\left(\frac{3}{2}\right)$

$C = 15$ ✓

(30)

$$10t = \frac{21}{t} + 1$$

$10t^2 = 21 + t$

$10t^2 - t - 21 = 0$

$2t \quad -3$

$5t \quad +7$

$(2t-3)(5t+7) = 0$

$t = 3/2$

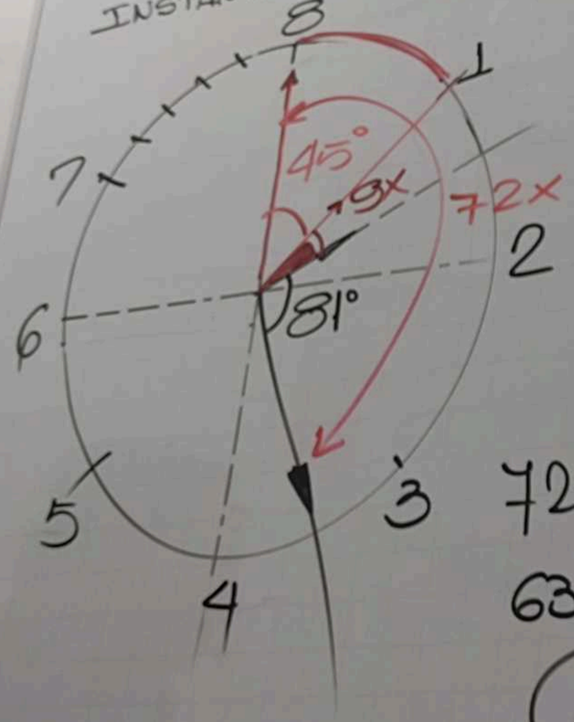
C	I	T
15	14	21
7	6	X

~~2 X X = 6(21)^3~~

$X = 9$

SI YOMILETH SALIÓ A COMPRAR EN EL INSTANTE QUE INDICA EL RELOJ Y REGRESÓ 20 MINUTOS MÁS TARDE. ¿A QUÉ HORA REGRESÓ?

A) 1:16 B) 1:18 C) 1:36 D) 1:38



1H ↓ 40min

45° 360°

$(9x)^\circ$ $(72x)^\circ$

$8x$

$1:8x \rightarrow 1:16$

$72x = 45 + 9x + 81$

$63x = 126$

$x = 2$